KEY TO CACTUS MEASUREMENTS BY YEAR

When an arm is pegged, two numbers are written in the box which normally contains the single measurement of peg to tip length, or base to tip length if the arm is unpegged. This dual number entry has meant different things in different years and this page attempts to explain which convention was used in each of the years that arms had new pegs placed in them. Each letter refers to a different method of recording the placement of the peg.

Notations Used:

A = $\frac{\text{base to tip}}{\text{base to peg}}$ B = $\frac{\text{base to peg}}{\text{peg to tip}}$ C = $\frac{\text{peg to tip}}{\text{base to peg}}$ D = $\frac{\text{base to tip}}{\text{peg to tip}}$

Year		Year	
03-70		02-81	D
12-70		12-81	D
12-71		12-82	D
01-73	A	02-84	
02-74	D	01-85	D
02-75		01-86	D
12-75		01-87	D
01-77	D	01-88	D
01-78		01-89	D
01-79	D	01-90	C (B for Bates Well)
01-80	D	01-91	C

CACTUS (plot) LOCATIONS

Organ Pipe #1	Highway 85	T17S, R5W, S8, SE¼, NW1/16
Organ Pipe #2	Highway 85	T17S, R5W, S5, W center
Organ Pipe #3	Highway 85	T17S, R5W, S5, NW¼, NE 1/16
Organ Pipes #4-34	Baker Mine road plot	T17S, R6W, S2, NE¼, SW 1/16
Senita #1&2	Senita Basin	T17S, R6W, S15, N center
Senita #3-5, 6	Lost Cabin Mine road	T17S, R6W, S27, NE¼, NE 1/16

Baker Mine road Plot: Two rock cairns mark the boundaries of the plot along the road. Both are on the up hill side of the road. Only one cactus in the plot is below the road.

Lost Cabin Mine Road plot: All the cactus are located relative to a metal post driven into the ground North of the road (a few feet). The post is green and stands 4 ft. high.

2-22-81

Dear Terry,

Thanks for the results of the cactus measuring project. Your work looks fine on the sheets you sent.

There are no boundaries on the xerita plot. All plants are described from the one metal fence post. They need to be redescribed. On some I used true compass directions. Other times (when I had no compass) I described them from road.

There were six xerita plants last year. We missed on this year - couldn't find it.

Arm #12 on xerita #4 has not grown any - damaged growing tip. It is alive & may some day sprout a bud & grow from there.

I mailed your 6 picks in a package today.

Terry, I certainly wish you the best.
Stop in here if you get this way.
Thanks for all your help &
interest

Sincerely,
Fred

"The Art Line"

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UNITED STATES GOVERNMENT

2-Way Memo

Subject: Test Plots, Columnar Cacti

DATE OF MESSAGE: 2-4-81

DATE OF REPLY:

INSTRUCTIONS

Use routing symbols whenever possible.
SENDER:
Forward original and one copy.
Conserve space.
RECEIVER:
Reply below the message, keep one copy, return one copy.

From:
Fred Goodsell
P.O. Box 321
Moran
Wyo. 83013

FOLD — FOLD

USE BRIEF, INFORMAL LANGUAGE

Dear Fred-

Hope you had a pleasant trip back to Wyoming. Bet its rather hard to go back to that snow sometimes.

I have finished the computations and have enclosed zeroxed copies of the final data sheets for both plots. You can take the info. you wanted directly from the sheets & check me in the process. You may keep the sheets of course.

I do have a couple of questions after completing the exercise.

1. What are the boundaries of your Senita plot? I remember the green metal post, are there other boundary markers?
2. Does the total Senita Series consist of only 5 (five) remaining plants? It seemed like the year I helped you out there were more?
3. There is a blank spot in column (arm) 12 of Senita #4, any explanations?

Thank you again for your very significant contribution on keeping these plots up all these years. Keeping touch

Your friend

Terry

James T. Peters
Rt. 1 Box 100
AJO
Ariz. 85321

5027 - 102

2. TO BE RETURNED TO ORIGINATOR

OPTIONAL FORM 27
OCTOBER 1962
GSA FPMR (41 CFR) 101 - 11.6

Op. 44

# 4	= 1 − 1 − 5¼	7.25
5	= 1½ − ¾ − 2½ − ½ − 3¼ − 3¾ − 4¼ − 2½ − 5½ − 2	26.5
6	= 2 − 2 − 2½ − 3 − 3¾ − 5½ − 3½ − 7¾ −	30.0
7	= 2½ − 3¾ − 3½ − 4½ − 4½ − 4¾ − 4¾	28.25
8	= 3¼ − 2½ − 3 − 4½	13.25
9	= 1¾ − 2¼	4.0
10	= ¾ − 1¾ − 1 − 1¼ − 1½ − ¾ − ½ − 1¾ − 3 − 3¼ − 3 − 4¼ − 3¼ − 4	30.0
11	= 1¼ − 2¼ − 5	8.5
12	− 1½ − 1¼ − 2¼ − 2¼ − 2¼ − 2¾	10.0
13	− 1¾ − 1¾ − 1¼ − 1¼ − 1¼ − 1½ − 1 − 1¾ − 2 − 2 − 2¾ − ¼ − 3 − 3½ − 5 − 3¾ − 1¾	35.5
14	− 1¼ − 1½ − 1 − 2½ − 3¼	9.5
15	− 1¼	1.25
16	− 1¼ − 3¼ − 2¾ − 2¼ − 2 − 1½ − 1¼ − 3 − 6½	7.25
17	− 2¼ − 2 − 1½ − 1¼ − 3 − 6½	16.5
18	− 2 − 1¾ − 1½ − 2¼ − 2¾ − 5 − 3¼ − 7¼	25.75
19	− 1 − 1	2.0
20	− ½ − ¾ − ¾ − ½ − ½ − 1¼ − 2½ − 2½ − 3	12.25
21	− 3 − 2¾ − 3½ − 4 − 5	18.25
22	− ½	.5
23	− 1¼ − 2 − 2 − 2¼ − ○ − 3¼ − 6¾	17.5
24	− 2¼ − 2¾	5.0
25	− 1¼ − 2¼ − 4¼ −	7.75
26	− 1¼ − 2 − 1½ − 1½ − 2¼ − 2¾ − 2 − 4¼ − 3¼	20.75
27	− 2½ − 2¾	5.25
28	− 1 − 3½ − 3¾	8.25
29	− 2¼ − 1½ − 2¼ − ¼ − 3¼ − 2½ − 2¼ − 8¾	23.0
30	− 3 − 2¾ − 2 − 4 −	11.75
31	− 1¾ − 2¾	4.5
32A	− ½	.5

33 - 2¾ - 5¼ - 4¼ - 3 - 7¼ - ✓ 22.5

3.3A - 2½ ✓ 2.5

34 - ¾ - ¾ - 1¾ - 2 - 1 - 1¾ - 1.5 - 2 - 3¾ - 4 ✓ 19.25

435.0

170

(2.70) by adding up Lft. col.

Ave. 9th cd. ↓

29.48

26.89

by adding 7th col.

26.2

S

#1 = -¼ - 0 - 1 - 0 - 5½ - 4½ - 12½ - 4¾ - 7 - 8¼ - 2 - 1 + -¼ - 1½ - 2½ - 3 - 53.5

#3 ¼ - 0 - ¾ - ¾ - 1¼ - 4 - 5 - 3¾ 16.0

4 5½ - 1¼ - ¾ - 4¾ - 1 - 0 - 1¼ - -¾ - 3¾ - 0 - 2 - 5¾ - 5 - 31.0

5 1 - 1 - ½ - 4¼ - 4½ - 11.25

8 ¼ .25

-1.25

1-22-80 Fred measured the plots on 1-21-80 this year. We are considering deleting the 3 plants by Hwy. 85 from the study. Plant #1 keeps getting the wooden pegs broken off by curious visitors. #2 has been frost damaged most of the 10 years of the study to date. The remaining 3rd plant is probably more trouble than worth. Will check w/ Scotti & get his opinion before dropping them from the study next year. The original reason for including 3 plants near road was to determine if any damage could be attributed to vehicle emissions.

2-3-81 I worked with Fred on the Baker mine plot and provided him with a helper for the Senita plot. He does not intend to continue to return each year to conduct the measurements as he has in the past.

Re-computed in pencil

Senita Data

of Growth

Year	# of measurments	Total growth	Average growth per measurment	Average growth since 1970
1970	16	99½"	6.25" 6.22	6.25" 6.22
1971	16	72½"	4.56" 4.53	5.37" 5.37
1972	17	71"	4.11" 4.18	5.00" 4.98
1973	27	116	14.93 4.30 4.30	4.72" 4.81
1974	30	120	19.23 4.00 4.00	4.52 4.65
75	32	113½	23.33 3.53 3.55	4.30 4.46
1976	34	145"	26.76 4.26 4.26	4.30 4.43
1977	38	145"	31.02 3.82 3,82	4.35
1978	53	317	34.89 5.98 6.00	4.56 4.54
1979	43	283½	40.84 6.59 6.60	4.76 4.74
1980	43	112	47.44 2.60	4.55
			50.04	

(I added ave. growth/measurment column ÷ # years of data) gp

Organ pipe Data

For year of growth ↓

Yearly growth ↓

Year	# of measurments	Total Growth	Average growth per measurment	Average growth since 1970
1970	144	445 3/4"	3.10"	3.10"
1971	144	178"	1.24"	2.17"
1972	146	286"	2.0"	2.09" 2.11 gp
1973	148	515"	3.5"	2.45 2.46 gp
1974	167	383"	2.23	2.43 2.41 gp
1975	140	219 1/4	12.07 1.56	2.28 2.27 gp
1976	187	674"	3.60	2.51 2.46 gp
1977	190	632	17.23 3.33	2.57 gp
1978	202	659	20.56 3.26	2.77 2.65 gp
1-21-80 1979	205	630 1/2	23.82 3.07	2.80 2.70 gp
1980	170 (Note: Road plots discontinued this year)	435	26.89 2.56	2.68 gp
			29.45	

LOCATIONS ORGAN PIPE
ORGAN PIPE CACTUS NATIONAL MONUMENT

Reference Point	Sample Number	Location
7-15	0-1	Bearing 118 degrees, 50 ft. SE of marker
16-23	0-2	Bearing 93 degrees, 40 ft. East of marker
24-34	0-3	Bearing 310 degrees, 80 ft.west of marker
24-34	0-4	Bearing 180 degrees, 12 ft. south of marker
198	0-5	Bearing 155 degrees, 30 ft. South east of marker
204	0-6	Bearing 114 degrees, 80 ft South east of marker
South East corner of Res. # 24	0-7	Bearing 122 degrees, 50 ft. South east of ref. pt.
North West corner of Res. # 20	0-8	Bearing 272 degrees, 45 feet west of ref. pt.
South east corner of Visitor Center Auditorium	0-9	Bearing 350 degrees, 50 ft. North west of ref. pt.
South east corner of Visitor Center Auditorium	0-10	Bearing 138 degrees, 140 South East of ref. pt.

****

Samples 0-1 through 0-6 were taken in the Headquarters Campground. Samples 0-1 through 0-4 were taken at the entrance to campground loops. 0-5 and 0-6 were taken at the campsites indicated by the site numbers. 0-7 and 0-8 were taken in the residential area. The residence number indicates the residence used as the reference point. 0-9 and 0-10 were taken in the Visitor Center Area.

LOCATIONS SAGUARO SAMPLES
ORGAN PIPE CACTUS NATIONAL MONUMENT

Reference Point	Sample Number	Location
MP 75.0	S-1	Bearing 80 degrees, 140 ft East of marker
MP 74.5	S-2	Bearing 16 degrees, 60 ft. NNE of marker
MP 74.3	S-3	Bearing 260 degrees, 60 ft. West of marker
MP 74.3	S-4	Bearing 336 degrees, 270 ft. NNW of marker
MP 74.2	S-5	Bearing 280 degrees, 160 ft. West of marker
MP 73.2	S-6	Bearing 46 degrees, 60 ft. NE of marker
MP 73.2	S-7	Bearing 80 degrees, 70 ft. East of marker
MP 73.2	S-8	Bearing 90 degrees, 100 ft. East of marker
MP 73.0	S-9	Bearing 64 degrees, 120 ft East of marker
MP 73.0	S-10	Bearing 52 degrees, 160 ft. North East of marker
MP 72.6	S-11	Bearing 50 degrees, 140 ft. North East of marker
MP 72.6	S-12	Bearing 19 degrees, 190 ft. North-north -east of marker
MP 72.2	S-13	Bearing 23 degrees, 120 ft. NNE of marker
MP 72.2	S-14	Bearing 43 degrees, 150 ft. NE of marker
MP 72.2	S-15	Bearing 18 degrees, 180 ft. NNE of marker
MP 68.2	S-16	Bearing 155 degrees, 90 ft. SE of marker
MP 68.2	S-17	Bearing 160 degrees, 110 ft. SE of marker
MP 67.2	S-18	Bearing 120 degrees, 80 ft. SE of marker
MP 67.0	S-19	B earing 116 degrees, 70 ft. SE of marker
MP 67.0	S-20	Bearing 134 degrees, 85 ft. SE of marker

****

All Saguaro samples were taken along highway 85. All reference points are highway mileage markers located on the East shoulder of the highway.

1981
2/2/81

Organ Pipe & Senita Growth Study

Organ Pipe plots are all in the same drainage supposedly. From top of hill to road 1 plant below

General Notes on Procedures:

Tags are stamped ex. 0 6 – 2 means plant # 6 arm 2. (Sometimes the plant # is omitted on many armed plants.

When measuring Organ Pipe stems measure to tip of plant, (not spines).

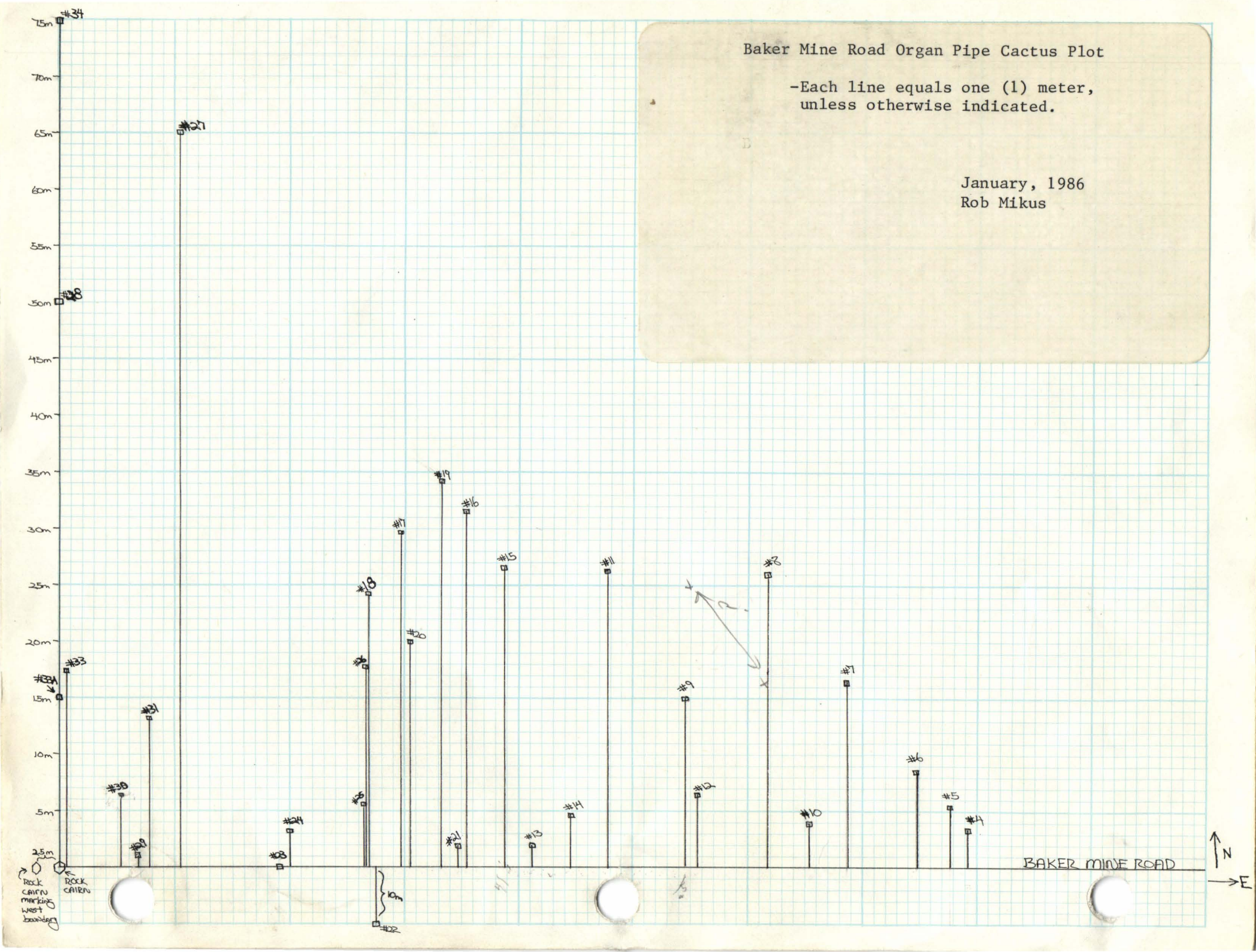
Do not disturb surrounding vegetation any more than necessary. In other words, don't remove a branch from a Palo Verde that is touching the cacti.

Pegs. Pegs are not inserted until arm gets older. On 1st yr. The arm is recorded, you measure from base of arm to top & record. When it gets large enough to peg, you draw a line accross field data entry square ex. and enter Total length on top. (tip to base) then distance from base to peg in bottom. In future years you will of course measure from peg only. Put pegs in outside of curve. (Otherwise when new arms grow out later they frequently break peg off.)

When measuring throw peg measure hook under

the * astirisks were used in early years to designate the formation of new arm.

Send Fred a Summary each year of ① Total growth measurements + ② total growth. (can just zerox summary sheets each spp.)


Baker Mine Road Organ Pipe Cactus Plot
-Each line equals one (1) meter, unless otherwise indicated.
January, 1986
Rob Mikus
75m
70m
65m
60m
55m
50m
45m
40m
35m
30m
25m
20m
15m
10m
5m
2.5m
#34
#27
#28
#33
#33A
#31
#30
#29
#32
#24
#23
#18
#17
#19
#16
#15
#20
#22
#21
#13
#14
#11
#8
#9
#12
#7
#10
#6
#5
#4
#1
#2
ROCK CAIRN marking west boundary
ROCK CAIRN
10m
BAKER MINE ROAD
N
E

1/9/85

A 100 meter tape is placed along the side of the road, as far to the north as possible. All measurements were made to due north or south using a compass. The beginning of the tape is placed 2.5 meters west of the rock cairn that marks the boundary of the plot itself. A second rock cairn was built indicating this location.

At 0.0m go 15m due north to plant #33A
under an ironwood tree
2 arms, both arising from the base, healthy plant

At 0.0m go 50m due north to plant #28
next to brittlebush
3 arms all from base, healthy plant

29
30
31
33
33A

At 0.0 m go 75 m due north to plant #34
at the peak of the hill
8 arms all from base
arm #7 constriction 18" from base
arm #3 constriction 32" from base
arm #1 constriction 26" from base
arm #8 constriction 17" from base
arm #2 constriction 55" from base
arm #6 constriction 40" from base
hedgehog cactus and brittlebush at the base
large woodrat nest at the base

26
20
23
24
25
18
17
34
28
21

At 0.7m go 17.5 m due north to plant #33
next to ocotillo and teddy bear cholla
6 arms, all from base, healthy plant

21 22
27
32

At 5.3 m go 6.4 m due north to plant #30
5 arms all from base
arm #1 is chewed for the first 10"

At 6.9 m go 1 m due north to plant #29
13 arms, all fron base

At 7.9 m go 13.2 m north to plant #31
next to limberbush
2 arms

At 10.5 m go 65 m due north to plant #27
on southeast slope, below #34
3 arms with bud at the base of arm #1

At 19.0 m at roadside is plant #23
7 arms

1/9/85

At 20.0 m go 3.25 m due north to plant #24
under palo verde
2 arms

At 26.5 m go 5.7 m due north to plant #25
6 arms, 3 of which are less than 1 m tall

At 26.7 m go 17.9 m due north to plant #26
south of palo verde
wolfberry to the east
limberbush to the west
12 arms

At 26.9 m go 24.3 m due north to plant #18
9 arms

3 m towards main ... next to ...

At 27.5 m go 10 m due SOUTH to plant # 22
under palo verde tree, next to brittlebush
1 arm with bud, arm looks very yellow and unhealthy

At 29.9 m go 29.8 m due north to plant #17
5 arms

At 30.5 m go 20.0 m due north to plant #20
9 arms

At 33.3 m go 34.2 m due north to plant #19
3 arms, all under 1 m tall
middle arm badly chewed for first .3 m

At 34.9 m go 2 m due north to plant # 21
next to saguaro
5 arms

At 35.4 m go 31.6 m due north to plant #16
in middle of brittlebush and limberbush
4 arms

At 38.7 m go 26.5 m due north to plant #15
1 arm, to the east of brittlebush

At 41.1 m go 2 m due north to plant #13
next to road, 13 arms

1/9/85

At 44.5 m go 4.8 m due north to plant # 14
6 arms, one is small and grows from base of arm #2

At 47.9 m go 26.3 m due north to plant #11
growing in limberbush and brittlebush
3 arms

At 54.5 m go 15 m due north to plant #9
growing in brittlebush and limberbush
buckhorn colla right infront of it
3 arms

At 56.5 m go 6.5 m due north to plant #12
5 arms

At 61.9 m go 26 m due north to plant #8
4 arms

At 68.7 m go 16.5 m due north to plant #7
6 arms

At 65.1 m go 4 m due north to plant #10
14 arms
arm #14 grows out of arm #9 12" from base
arm #9 constriction 12" from base
4" bud at base of arm #11

At 74.9 m go 8.7 m due north to plant #6
10 arms
arm #9 grows from bases of arms #2 & #3

At 77.9 m go 5.3 m due north to plant #5
behind palo verde
9 arms

At 79.2 m go 3.3 m due north to plant #4
in palo verde tree, next to 2 small saguaros
3 arms

Acc. 670a

ORGAN PIPE CACTUS GROWTH MEASUREMENTS - OPCNM

(Fred Goodsell et al)

ORPI Field Records

Acc# 670
a,b
RESOURCE CENTER
REFERENCE LIBRARY

ORGAN PIPE AND SENITA CACTUS GROWTH MEASURMENTS

OBJECTIVES

General: To learn all that can be learned about Organ Pipe and Senita cactus through annual observations and growth measurments.

Specific:
1. To determine the growth rate of Organ Pipe and Sentia cactus.
2. To establish a basis for estimating the age of Organ Pipe cactus in the field.
3. To determine an average life span for Organ Pipe cactus.
4. To determine whether of not Organ Pipe cactus growing next to the highway show any abnormal growth patterns.

PROCEEDURES

1. Assemble equipment necessary (see equipment list)
2. Study base map and plot descriptions to determine which area to work.
3. Take field measurments and record observations
4. Fill in growth record sheet.
5. Evaluate data.

1976
Fred Goodsell
Moran, Wyo.
Box 321 83013
307 - 543-2390

O.P. #1

Location: Point #1 on Base map

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2/24/70	18	12½	12¾	13¾	9¼	8	13¾	8¼	9¼	9	8¼	7¼	7½	7¾	7¾	11¾		
12-19-70	*21½	14¼	15½	18%	13%	11¼	14¼	13%	*13½	14½	16%	12½	15¼	10¾	14¾	*16%	8½	
12-6-71	21½	15¾	16½	18%	13¼	11½	15¾	13½	13	15¼	17¼	12¾	15¼	11½	15¼	7	?	
1-1-73	21¼	16¾	18½	21¼	13¾	12¼	15¾	15¼	13¾	16¾	21%	17¾	17¼	12½	16%	7½	—	
2-12-74	24	18¾	20	23½	16¾	15¼	15½	18¼	16	19½	25¼	20½	21½	15¾	19½	8½		
2-4-75	25½	19¾	21½	24¾	17¼	15¼	16	20	17	20	29¼	23¾	25¾	17	22¼	10		
1-13-76	27¼	22	23	26¾	20¼	17½	17	23¼	*7	27¼	35¾	28¼	15¾	19¾	28	13½	9"	8¾"
	29	23	24½	30	22	19	15	28¼	7	29⅞	10¼	33	15⅞	24⅞	32	16	16	18
1/24 1979	30	23¾	26	31¼	23	19½	15¼	29	8	31	41¾	33¾	15¾	26¼	33¼	17	18½	13
1/21/80	32½		2+½	33½				29¼	(15)	33½	45	37	15¾	29¼	33¾			20¾
2/3/81	discontinued this year.																	

.1 miles North of headquarters entrance road on East side of St 85

* new sticks put in

* 16 stake 7 inches from top

Date 2/24/70

INITIAL DESCRIPTION

Cactus
O.P. #1

Location
Point #1 on base map

Number of arms 16

Height of tallest arm 85½"

General comments: PLANT HAS MANY JOINTS BUT APPEARS HEALTHY

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	85½	73¾	69½	73¼	65	67	50	51	60	49	47	35	27	27	22	12

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual	3½	1¾	2¾	4¼	3¾	3¼	½	4¾	4¼	5½	7¾	5¼	7¾	3	7	4¼
	Total	3½	1¾	2¾	4¼	3¾	3¼	½	4¾	4¼	5½	7¾	5¼	7¾	3	7	4¼
	Annual	0	1½	1	0	¼	¼	1½	½	0	¾	1¼	¼	0	¾	½	0
	Total	3½	3¼	3¾	4¼	4	3½	2	5¼	4¼	6¼	9	5½	7¾	3¾	7½	4¼
	Annual	0	1	2	3¼	½	¾	0	1¾	¾	1½	3¾	5	2	1	¾	½
	Total	3½	4¼	5¾	7½	4½	4¼	2	7	5	7¾	12¾	10½	9¾	4¾	8¼	4¾
	Annual	2¾	2	1½	2¼	3	3	0	3	2¼	2¾	4¼	2¾	4¼	3¼	3½	1
	Total	6¼	6¼	7¼	9¾	7½	7¼	2	10	7¼	10½	17	13¼	14	8	11¾	5¾
	Annual	1½	1	1½	1¼	½	0	½	1¾	1	½	4	3¼	4¼	1¼	2¾	1½
	Total	7¾	7¼	8¾	11	8	7¼	2½	11¾	8¼	11	21	16½	18¼	9¼	14½	7¼
	Annual	1¾	2¼	1½	2	3	2¼	1	3¼	0	7¼	6½	4½	0	2¾	5¾	3½
	Total	9½	9½	10¼	13	11	9½	3½	15	8¼	18¼	27½	21	18¼	12	20¼	10¾
78	Annual	1¾	1	1½	3¼	1¾	1½	0	5	0	2½	4½	4¾	0	5	4	2½
	Total	11¼	10½	11¾	16¼	12¾	11	3½	20	8¼	20¾	32	25¼	18¼	17	24¼	13¼
1-24 79	Annual	1	¾	1½	1¼	1	½	0	¾	1	1¼	1½	¾	0	1½	1¼	1
	Total	12¼	11¼	13¼	17½	13¾	11½	3½	20¾	9¼	22	33½	26½	18¼	18½	25½	14¼
1/21/80	Annual	±	—	0	±	—	—	—	¼	—	2¾	3¼	3¼	0	3	¼	—
	Total	14¾		13¼	19¾	13¾			21	9½	24¾	36¾	29¾	18¼	21½	25¾	14¼
2/3/81	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																

GROWTH

Date 1-24-79

INITIAL DESCRIPTION

ctus OP #1

Location
Point #1

Number of arms 18

Height of tallest arm _____

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Growth Record

Date	Arm #	17	18	3	4	5	6	7	8	9	10	11	12	13	14	15	16
78	Annual	5	7														
	Total	5	7														
79	Annual	2 1/2	4 1/4														
	Total	7 1/2	11 1/4														
	Annual		7 3/4														
21/80	Total		19														
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
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r o w t h

CACTUS O.P. #1 FIELD OBSERVATION SHEET # 1

Date 2/25/70

INITIAL DESCRIPTION

1. PLANT HAS MANY "JOINTS" WHERE GROWING TIP HAS BEEN DAMAGED AND HAS REGROWN OFF-SET OR WITH ATLEAST A CONSTRICTION AROUND THE ARM

2. AN ARM BUD ON ARM #4. BUD IS 4" LONG BUT TIP APPEARS DEAD

3. AN ARM BUD AT BASE OF ARM #4 IS 3" LONG; TIP APPEARS DEAD

4. AN ARM BUD ON ARM #7 IS 4" LONG BUT TIP IS DEAD

5. AT THE BASE OF ARM #1 (BELOW #13) IS THE REMAINS OF A DEAD ARM WHICH WAS ABOUT 40" LONG AT ONE TIME.

---

new bud on arm #9

12-6-71 Tops of numerous arms have turned yellow

1-1-73 Arm #9 Buds - 1
#3 -2
#4 -2
Generally in good shape. Better than last year.

2-12-74 growing tip #7 dead
#9 ARM bud 6½"
#4 lower 7½ upper 4" buds
#3 lower 5 upper 3½"
healthy
Cordelia rubbing against tip of #16

2-4-75 bud on top of #7
#4 has two new arms 8" and 11½" at its base
#3 has two new arms 6" and 7½"
#8 arm bud 6" long mid cory upr

Arm #17 - 1-13-7

CACTUS OP #1 FIELD OBSERVATION SHEET #2

Date 1-13-79

arm # 9, Stake relocated at 7" (Top of arm gone)
Arm #17 + 18 ~~ARE AT THE~~ BASE OF ~~DRUM~~ NR 4
3 New Arm AT BASE 7" Long Only 1 now.

FOS ORGAN PIPE #1 FIELD OBSERVATION SHEET #

Date 7-25-78

- Arm # 7 has 1¼ inches of dead ~~##~~ spine and core at top. Bud on arm #7 measures 4 inches long; the apical meristem region is dead.
- Bud on arm #3 measures 9½ inches in length.
- Bud on arm #4 is 4 inches long and apical meristem zone is dead.
- Arm number (#) ~~tags~~ tags replaced: 12, 17, & 18.
- Pack rat nest in base of arms.
-

K. P. Coates

1-24-79

Arm #7, #9, #13 have damaged tips.
Arm #8 has a rotten tip

Revised Location

1.7 miles from Mile Post #75.

Yellow flagging, on west of 85, in Palo Verde. Plant is ~ 40 ft. west of flaggers.

Data Sheet

Cactus OP#2

Location
Point #2 on Base map

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2-24-70	10	10 3/4	8 3/4	17 3/4	14	7 1/4	9	12 3/4	9 1/2	10 1/4	7 1/2	7 3/4	*6 3/4					
	1	2																
12-19-70			14 1/4	23 1/2	14													
12-6-71	1	2	15 0/0	24 3/4	14	13 1/2	22 1/4	19 3/4	15 3/4	20 0/0	16 1/2	21 1/4	18 3/4					
1-1-73	—	—	14 1/2	27 1/4	13 1/2	19 1/4	25 3/4	24 1/2	15 3/4	20 0/0	17 1/2	26 3/4	19 3/4					
2-12	-	-	14 1/2	29 1/4	13 1/2	22	30	27	15 3/4	19 1/2	17	32 1/2	7					
2-4-75	8 1/4	~~11~~	11 1/2	34 1/4	13 1/2	20 3/4	37 1/4	32 1/2	15 3/4	21	17 5/8	39 1/2	7 1/2	13				
1-13-76	20	25 1/4	14 1/2	42	13 1/2	38	47 1/2	40 1/2	16	21 1/4	17 1/4	51 1/2	7 1/4	23 / 10 1/2				
	23 1/2	44 5/8	23 1/8	51	12 1/2	39	56 3/8	49 7/8	18 1/2	34 1/8	19 1/2	62 1/2	7 3/4	22	9 1/2			
1/24/1979	25	47 1/4	24 1/2	52	13 1/4	38	60	50	18 1/4	37 1/2	22	67 *12 1/2	7 3/4	25 1/2	9			
1/21/80	25	47 1/4	24 1/2	52	13	38	60 1/2	50	17 1/2	37 1/2	~~21~~ 22	20	7 3/4	26	9			
2/3/81			Discontinued This Year															

Specific Location
(if necessary)

1.9 miles north of visitor center on west side of rt 85.
The plant is about 40 feet from the road.
1 arm damaged bud 1½"
2 arm damaged 2 buds

Date 2/17/70

INITIAL DESCRIPTION

Cactus

Location

I. P. #2

POINT #2 ON BASE MAP

Number of arms 13

Height of tallest arm 93"

General comments:

AN ATYPICAL PLANT. EARLIEST ARMS WERE BROKEN OFF NEAR (1-2FT) THE GROUND. A NUMBER OF ARMS HAVE "JOINTS" WHERE THE GROWING TIPS HAVE BEEN DAMAGED AND THE ARM HAS HAD TO START AGAIN

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	93	90	74	70	61	48	59	49	54	49	26	18	7			

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual			5 1/2	4 3/4	0											
	Total			5 1/2	4 3/4	0											
	Annual			~~5 1/2~~	1 1/4	0											
	Total			6 1/4	6	0											
	Annual			0	2 1/2	0	5 3/4	3 1/2	4 3/4	0	0	1	5 1/2	1			
1-73	Total			6 1/4	8 1/2	0	5 3/4	3 1/2	4 3/4	0	0	1	5 1/2	1			
	Annual			0	2	0	2 3/4	4 1/4	2 1/2	0	0	0	5 3/4	0			
	Total			6 1/4	10 1/2	0	8 1/2	7 3/4	7 1/4	0	0	1	11 1/4	1			
	Annual			0	5	0	6 3/4	4 1/4	5 1/4	0	1 1/2	1/4	7	1/2	0		
	Total			6 1/4	15 1/2	0	15 1/4	15	12 3/4	0	1 1/2	1 1/4	18 1/4	1 1/2	0		
	Annual	~~11 3/4~~	~~24 1/2~~	~~11 3/4~~	~~24 1/2~~												
	Total																
	Annual	11 3/4	24 1/2	0	7 3/4	0	9 1/4	10 1/4	8	3/4	1/4	0	12	0	12		
	Total	11 3/4	24 1/2	6 1/4	23 3/4	0	24 1/2	25 1/4	20 3/4	3/4	1 3/4	1 1/4	30 1/4	1 1/2	12		
	Annual	3 1/2	9	8 1/2	9	0	0	9	9 1/4	2 1/4	13	2 1/4	11	1/2	11 1/2		
	Total	15 1/4	33 1/2	14 3/4	32 1/4	0	24 1/2	34 1/4	30	3	14 3/4	3 1/2	41 1/4	2	23 1/2		
1-24-79	Annual	1 1/2	2 3/4	1 1/2	1	0	0	3 1/2	0	0	3 1/4	2 1/2	4 1/2	0	3 1/2		
	Total	16 3/4	36 1/4	16 1/4	33 1/4	0	24 1/2	37 3/4	30	3	18	6	45 3/4	2	27		
4/21/80	Annual	0	0	0	0	0	0	4 1/2	0	0	0	0	7 1/2	0	0		
	Total	16 3/4	36 1/4	16 1/4	33 1/4	0	24 1/2	42	30	3	18	6	53 1/4	2	27		
	Annual																
	Total																
	Annual																
	Total																

Growth

CACTUS O.P. #2 FIELD OBSERVATION SHEET # 1

Date 2/25/70

INITIAL DESCRIPTION

1. MANY JOINTS ON THE PLANT

2. THE PRESENT PLANT SEEMS TO HAVE DEVELOPED FROM A SMALLER PLANT WITH SEVEN ARMS. ALL OF THE SEVEN WERE DAMAGED BUT FROM THEM HAVE COME THE PRESENT 13 ARMS

-6-71

Bud on arm #1 dead
Bud nearest road 4 3/4", Next bud 3 3/4"

1-1-73

Arm 13. put peg in at 7¼"
Arm 2 - still has 2 buds, both appear to be dead.
Generally - in better shape than before;
all dead parts on north side

2-12-73

New bud on #2 is 4 3/4"
New bud on #1 is 4 3/4
generally healthy
New bud on #5 (base) is 5 1/2
" " " #2 " is 5 3/4

-4-75

Bud on #2 is 11"
Arm #14 is 13" total - no stalk - comes from #5

3-12

TUS Organ Pipe #2 FIELD OBSERVATION SHEET #

Date 7-25-78

- 1 3/4 inch bud on tip of arm #9.
- 4 1/4 in bud on tip of arm #5. The apical meristem zone of bud is dead and fleshy growth has receded from core and sealed off.
- 2 inch bud on tip of arm #11.
- Tagged, pegged and measured new arm #15. The arm emanates from basal portion of plant.
- Tag replaced on arm #14
- Stakes (pegs) replaced in arms: 1, and 2.
-

1-24-79
new peg put in for Arm #12
bad tips on #9, #11

Location

Plant is located ~ 40 yards south of M.P. # 73 and ~ 30 yards west of roadway.

CA

LIC. NO. STATE &																							
& TYPE VEH. MAKE																							
T/R																							
SITE	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	
M.E.D.																							
LIC. NO. STATE &																							
& TYPE VEH. MAKE																							
T/R																							
SITE	1	2	3	4	5	6	7	8													21	22	

Data Sheet

Cactus

O.P. #3

Location

Point #3 on Base map

APN #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4/24/70	7	7 3/4	7 1/2	6 1/4														
12-19-70	9 3/4	12 1/4	10 1/4	7 1/4														
12-6-71	11 1/4	12 1/2	10 1/4	7 1/4														
1-1-73	14 3/4	12 1/4	10 1/4	6 3/4														
1-12-74	18 1/2	13	12 1/2	7 1/2														
2-11-75	22 1/4	12 1/2	12 1/2	7 1/4	19													
1-13-76	28 3/4	12 3/4	15 1/2	10 1/2	30 8 3/4	9 1/4												
	34 5/8	14 3/4	19 1/2	16 7/8	15 1/8	15 1/4	10"											
79	35 1/4	14 1/2	20	17	16 1/2	17	13 1/4											
80	40 1/2	17 1/2	21 3/4	25	22	20 1/2	20 1/2											
2/3/81			Discontinued This Year															

Specific Location
(if necessary)

2.3 miles north of Visitor Center on rt 85 on west side of road. (Appx 50 yds south of mp #73) on Road cut above Road

Plant is about 40 ft from the road at the northern most cut in the road (in that area)

Date 2/17/70

INITIAL DESCRIPTION

Location

Point #3 on base Map

Number of arms 4

Height of tallest arm 34"

General comments: VERY HEALTHY

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	34 1/4	32 1/2	31 3/4	15 1/2												

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual	2 3/4	4 1/2	2 3/4	1												
	Total	2 3/4	4 1/2	2 3/4	1												
	Annual	1 1/2	1/4	0	0												
	Total	4 1/4	4 3/4	2 3/4	1												
	Annual	3 1/2	0	0	0												
	Total	7 3/4	4 3/4	2 3/4	1												
	Annual	3 3/4	0	2 1/4	3/4	3											
	Total	11 1/2	4 3/4	5	1 3/4	3											
	Annual	3 3/4	1/2	0	0	6 1/4											
	Total	15 1/4	5 1/4	5	1 3/4	9 1/4											
	Annual	6 1/2	1/4	3	3 1/4	11	11 1/2	DR									
	Total	21 3/4	5 1/2	8	5	20 1/4	11 1/2										
	Annual	6	2	4	6 1/4	6 1/4	6	10									
	Total	27 3/4	7 1/2	12	11 1/4	26 1/2	17 1/2	10									
	Annual	1/2	0	1/2	1/4	1 1/2	1 3/4	3 1/4									
79	Total	28 1/4	7 1/2	12 1/2	11 1/2	28	19 1/4	13 1/4									
	Annual																
	Total																
	Annual																
	Total																
1/80	Annual	5 1/4	3	1 1/4	8	5 1/2	3 1/4	7 1/4									
	Total	33 1/2	10 1/2	13 3/4	19 1/2	23 1/2	22 1/2	20 1/2									
	Annual																
	Total																

Growth

CACTUS O.P. #3 FIELD OBSERVATION SHEET # 1

Date 2/25/70

INITIAL DESCRIPTION

1. ARMS #1-3 seem NORMAL & HEALTHY
2. ARM #4 HAS A DAMAGED GROWING TIP
3. TWO NEW ARMS HAVE STARTED AT THE BASE OF #4 ONE IS 2" LONG & THE OTHER IS LESS THAN 1"

12-19-70 one bud 9 3/4
" " 1 1/2 damaged growing tip
one bud is in center of plant 1 1/2

12-6-71
9 3/4" bud has damaged growing tip
No change in other 2 buds

1-1-73 No change in bud
New stalk in arm 3
Bud in center of plant died

2-12-74 9 3/4" bud becomes ARM #5 (NOW 12 3/4" long ~~from ground~~ - No stake)
New bud At base #2 (N. side) 5 3/4" long

2-4-75 Bud on #5 now 11" - 22 1/2
Bud at base of #2 is now 13 1/2"

CTUS Organ Pipe #3 FIELD OBSERVATION SHEET #

Date 7-25-78

- 1 3/4 inch bud on tip of arm #2. Arm & bud length; 14 3/4 in..
- New arm #6, tagged pegged and measured. This arm emanates from base of arm #1.
-

1-24-79
Ok

Data Sheet

RAW DATA

Cactus O.P. #4

Location: Baker Mine Rd plot

ARM A

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/10/70	8 3/4	*7 3/4																
12/19/70	10 1/2	*13 3/8																
12-6-71	11 1/4	10																
1-1-73	11 3/4	13 1/4																
2-74	15 1/2	19 3/4																
2-4-75	16 3/4	23 3/4																
12-24-75	17 1/2	26 1/4																
1-13-77	19 3/2	30 1/2																
1-27-78	21 3/4	33	3															
1-24-1979	25	36	13 1/4 8 1/2															
1/21/80	27 1/2	38 1/2	17 1/4															
2/3/81	28 1/2	39 1/2	22 1/2															
12-17-81	30 1/4	40 1/4	29 ?															
12-14-82	31 1/4	42	35 1/4															
2-9-84	33 1/2	44 1/4	43 1/4															

Specific Location (if necessary)

*12/19/70 peg installed 7 2/8" to top

Date 3/10/70

INITIAL DESCRIPTION

Status O.P. #4

Location
BAKER MINE RD. PLOT

Number of arms 2

Height of tallest arm 42"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	42	8														

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12-10-70 (3-10-70)	Annual	1 3/4	5 1/4														
	Total	1 3/4	5 1/4														
12-6-71	Annual	3/4	3														
	Total	2 1/2	8 1/4														
1-1-73	Annual	1/2	3 1/4														
	Total	3	11 1/2														
2-74	Annual	3 3/4	6 1/2														
	Total	6 3/4	18														
2-475	Annual	1 1/4	4														
	Total	8	22														
12/75	Annual	3/4	2 1/2														
	Total	8 3/4	24 1/2														
H3-77	Annual	2 1/4	4 1/4														
	Total	11	28 3/4														
1-27-78	Annual	2	2 1/2														
	Total	13	31 1/4														
1-24-79	Annual	3 1/4	3	13 1/2													
	Total	16 1/4	34 1/4	13 1/2													
1/21/80	Annual	2 1/2	2 1/2	6 3/4													
	Total	18 3/4	36 3/4	20 1/4													
21 3/81	Annual	1	1	5 1/4													
	Total	19 3/4	37 3/4	25 1/2													
12-17-81	Annual	1 3/4	1	5 1/4													
	Total	21 1/2	38 3/4	30 3/4													

Growth

INITIAL DESCRIPTION

P. 2

Date: 3/10/70

Cactus: OP #4

Location: BAKER MINE RD. PLOT

Number of arms 3

Height of tallest arm 42"

General Comments: this page does not agree with P.1 for 12-14-82 & 2-9-84

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

33 1/4 6 4 3/4

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1	1 3/4	6 1/4													
	Total	22 1/2	40 1/2	37													
2/9/84	Annual	2 1/4	2 1/4	8													
	Total	24 3/4	42 3/4	45													
1/9/85	Annual	[illegible]															
	Total	34 3/4	45 1/4	49 1/4													
1/10/86	Annual	1 1/2	3/4	6													
	Total	36 1/4	46	55 1/4													
1/2/87	Annual																
	Total	37 1/2	46 3/4	59 1/4													
1/27/88	Annual																
	Total	38 1/8	47 5/8	61 5/8													
1/18/89	Annual																
	Total	41 3/4	48 3/8	67 1/4													
1/22/90	Annual				n	n	n										
	Total	42	49 3/4	69 1/2	5 1/2	6 1/2	8 3/8										
1/16/91	Annual																
	Total	45	50 1/2	72 1/4	17 1/4	17 1/2	9 w/ bud			new bud / old bud							
1-23-92	Annual																
	Total	48 1/4	51 1/2	76	9 3/4 / 15 1/2	13 1/4 / 15 1/2	5 1/2 / 8										
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

CACTUS O.P. #4 FIELD OBSERVATION SHEET #1

Date 3/10/70

Healthy plant.

2-12-74 Healthy

1-27-78 New bud base of branch #2 — 3", Plant healthy

1-24-79 New bud has total length of 13¼ inches
Peg installed 8½" from top

1-9-85 arm #3 needs new peg + wire

1-10-86 New bud on N side of arm #1 at base. 2½" total length

1-27-88 Bud on N side of arm #1 approx 9" long - Top 2" dead

1/18/89 Bud near arm #1 (8 in. bud)

Data Sheet

RAW DATA

Cactus: O.P #5

Location: BAKER MINE RD PLOT

FORM A

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/10/70	12¼	8¾	8¼	7½	9½	6¼	5¾	*7½										
12/18/70	14⅝	11¼	11⅝	9½	10½	10½	10½	*11½										
12-6-71	14¾	13	12¼	9¾	10¾	11¾	11¼	8⅝										
1-1-73	15¾	13½	14⅝	11½	12¼	13¾	13¾	10¾										
2-12-74	17¼	16¼	17¼	14⅝	15¼	18½	19¼	17½										
2-4-76	17¾	17½	21	16⅝	19	21½	23½	20¼										
12-24-75	19	19	23	17½	21¼	23¾	26¼	22¼										
1-13-77	26¼	20½	25½	20	25	27¼	32½	29½ / 10¼	9¼									
1-27-78	22¾"	21¾"	27½	22"	29¼"	32½"	37"	13½"	5 / 12¾									
1-24-79	23½	23	29	22¼	31	34¾	40¾	16	23¼									
1/21/80	27	25¼	30½	24¼	35½	37¾	45¾	19¾	30	13½								
2/3/81	28½	26	33	24¾	38¾	41½	50	22¼	35½	15½ / 7½								
2-17-82	32¾	27¾	35¼	26	41¼	45¾	53¼	25¼	38¾	9¼								
12-14-82	36¼	30¾	38¾	28¾	45	50¼	57¾	28½	44	13								
2-9-84	39½	32	41	29½	47¾	54½	60¾	32	50	16½								

Specific Location (if necessary)

* peg installed 6½" to top

Date 3/10/70

INITIAL DESCRIPTION

Location
BAKER MINE RD PLOT

Number of arms 8

Height of tallest arm 73"

General comments:

PLANT HAS NUMEROUS JOINTS AND CONSTRICTIONS. TALLEST ARM IS BEING RUBBED BY A PALOVERDE.

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	73	70	67	64	30	20	11	8								

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12-19-70	3-10-70 Annual	1 3/4	2 1/2	2 3/4	2	1	4 1/4	4 3/4	4								
	Total	1 3/4	2 1/2	2 3/4	2	1	4 1/4	4 3/4	4								
12-6-71	Annual	3/4	1 3/4	1 1/4	1/4	1/4	1 1/4	3/4	1 1/2								
	Total	2 1/2	4 1/4	4	2 1/4	1 1/4	5 1/2	5 1/2	5 1/2								
1-1-73	Annual	1	1/2	1 3/4	1 3/4	1 1/2	2	2 1/2	2 3/4								
	Total	3 1/2	4 3/4	5 3/4	4	2 3/4	7 1/2	8	8 1/4								
2-12-74	Annual	1 1/2	2 3/4	3 1/4	2 1/2	3 1/2	4 3/4	5 1/2	6 3/4								
	Total	5	7 1/2	9	6 1/2	6 1/4	12 1/4	13 1/2	15								
2-4-75	Annual	1/2	1 1/4	3 3/4	2	3 1/4	3	4 1/4	2 3/4								
	Total	5 1/2	8 3/4	12 3/4	8 1/2	9 1/2	15 1/4	17 3/4	17 3/4								
12-24-75	Annual	1 1/4	1 1/2	2	1 1/2	2 1/4	2 1/4	3 1/4	2								
	Total	6 3/4	10 1/4	14 3/4	10	11 3/4	17 1/2	21	19 3/4								
1-13-77	Annual	1 1/4	1 1/2	2 1/2	2 1/2	3 3/4	3 1/2	5 3/4	5 1/4	9 1/4							
	Total	8	11 3/4	17 1/4	12 1/2	15 1/2	21	25 3/4	27	9 1/4							
1-27-78	Annual	2 1/2	1 1/4	2	2	4 1/4	5 1/4	4 1/2	3 1/4	6 1/2							
	Total	10 1/2	13	19 1/4	14 1/2	19 3/4	26 1/4	30 1/4	30 1/4	15 3/4							
79	Annual	3/4	1 1/4	1 1/2	1/4	1 3/4	2 1/4	3 3/4	2 1/2	7 1/2							
	Total	11 1/4	14 1/4	20 3/4	14 3/4	21 1/2	28 1/2	34	32 3/4	23 1/4							
1/21/80	Annual	3 1/2	2 1/4	1 1/2	2	4 1/2	0	5	3 3/4	6 3/4							
	Total	14 3/4	16 1/2	20 1/4	16 3/4	26	28 1/2	39	36 1/2	30	13 1/2						
2/3/81	Annual	1 1/2	3/4	2 1/2	1/2	3 1/4	3 3/4	4 1/4	2 1/2	5 1/2	2						
	Total	16 1/4	17 1/4	24 3/4	17 1/4	29 1/4	32 1/4	43 1/4	39	35 1/2	15 1/2						
12/1/81	Annual	4 1/4	1 3/4	2 1/4	1 1/4	2 1/2	4 1/4	3 1/4	3	3 1/4	1 3/4						
	Total	20 1/2	19	27	18 1/2	31 3/4	36 1/2	46 1/2	42	38 3/4	17 1/4						

growth

INITIAL DESCRIPTION

Date: 3-10-70 P.2

Cactus: OP #5 Location:

Number of arms _____

Height of tallest arm _____

General Comments: this page does not agree with p.1 for 12-14-82 & 2-9-84

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

~~60 3/4~~ ~~61 1/4~~ ~~58 3/4~~ ~~56 1/2~~ 20 1/2 13 3/4 58 1/2 ~~38 1/2~~ 24 1/4 14 1/4 8

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	3 1/2	3	3 1/2	2 3/4	3 3/4	4 1/2	4 1/2	3 1/4	5 1/4	3 3/4						
	Total	24	22	20 1/2	21 1/4	35 1/2	41	51	45 1/4	44	21						
2/9/84	Annual	3 1/4	1 1/4	2 1/4	3/4	2 3/4	4 1/4	3	3 1/2	6	3 1/2						
	Total	27 1/4	23 1/4	22 3/4	22	38 1/4	45 1/4	54	48 3/4	50	24 1/2						
1/9/85	Annual	~~13 1/4~~	~~10 1/4~~	~~12 1/4~~	~~8 1/2~~	~~13 1/2~~	~~16 3/4~~	~~8 3/4~~	~~3 1/4~~	~~4 1/4~~	~~6 3/4~~						
	Total	40 1/2	33 1/2	41	30 1/2	51 3/4	56	62 3/4	~~35 1/4~~	54 1/4	~~18 1/2~~						
1-10-86	Annual	~~1 3/4~~	1 1/4	1/2	3/4	1/2	1 1/2	2 1/4	1/4	1 1/4	1 3/4						
	Total	42 1/4	34 3/4	41 1/2	31 1/4	52 1/4	57 1/2	~~65~~ 11 3/4	35 1/2	55 1/2	20 1/4						
1/7/87	Annual																
	Total	~~43 3/4~~	35 1/4	43 1/4	32 1/2	54 3/4	59 1/4	13	37 1/2	59 1/2	~~19 3/4~~						
1/27/88	Annual																
	Total	44 1/2	37 1/8	44 1/4	35 1/4	56 1/8	61 5/8	15 1/2	38 5/8	61 1/2	21 1/2						
1/18/89	Annual																
	Total	47 3/4	37 3/4	45 3/4	38 1/8	58 3/4	64 3/8	20	41 7/8	65 1/4	25						
* 1/22/90	Annual																
	Total	47 1/2	37 1/4	45	39	68 1/2	65	24 3/4	42 3/4	65 3/4	26 3/4						
1/16/91	Annual																
	Total	47 1/2	39 1/2	46 3/4	41 1/2	64	69 3/4	25	45 1/4	69 1/4	33						
1-23-92	Annual																
	Total	48	40 1/2	47 3/4	45	66	73	28 1/2	47 1/2	73 1/2	38						
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

* Excluding spines at top of stem

CACTUS O. P. #5 FIELD OBSERVATION SHEET #1

Date 3/10/70

1. ARM #1 HAS ONE JOINT ABOUT 2' UP & A CONSTRICTION ABOVE THE PEG. THE TIP IS BEING RUBBED BY A PALO VERDE.
2. ARM #3 HAS A JOINT ABOUT 2' UP
3. ARM #5 HAS A JOINT ABOUT 2' UP, ANOTHER 4" ABOVE THAT & A BUD FORMING THE PRESENT TOP OF THE ARM
4. ARM #8 HAS NEITHER A RING NOR A PEG

New bud at base of #2
Healthy

12-24-75 New bud at base of #3 is 9"

12-24-75 Bud at base of #2 now 14½" – 23½ now

1-27-78 (new) Bud at base of #3 arm now – 3½" - healthy plant –

1-24-79 Arm #10 from base of #3. Total length of 7¼"

2/9/84 – arm #9 needs new tag

1-9-85 – arm # 10 measured from peg to tip + base to ~~tip~~ (see data sheet)

1-9-85 – arm # 8 also pulled out old lower peg this date

1-9-85 – arm #1 shows constriction 23½" up from base. Also arm #5 has branch at the old constriction 29" up from base.

1-10-86 – new peg #7

Data Sheet

Cactus O.P. #6

Location

BAKER MINE RD PLOT

30½ / 5

ARMS #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/10/70	8¼	8¾	6¾	6½	*7¼													
12/19/70	13½	12¼	11¾	14¼	*~~16~~													
12-6-71	13½	13¾	12½	17½	16½													
1-1-73	13¾	13½	13⅝	19½	20½	*6												
2-12-74	17½	17	17½	24¾	27¾	6¼												
2-4-75	18¼	19¼	19¾	27½	31¼	7¾												
12-24-75	20¼	21¾	21¼	29½	33	12¼												
1-13-77	21¾	24½	25	34	36¼ / 9½	19	5½											
1-27-78	25"	28¼"	29¾"	37½"	13¾"	28½"	13½"	1½										
1-4-79	28	31½	34	42½	17½	33¼ / 7¾	19½	12½										
1/21/80	30½	35¼	38	46½	22¼	15	27	19¾										
2/3/81	32½	37¼	40½	49¼	26	20½	30½	25½ / 6¼	4½	5¼								
12-17-81	34¾	37½	41¼	52°	29¼	24¼	35	11½	15¼ / 4¾	20¼ / 5¾								
12-14-82	36	41¼	43¼	55°	33½	28¾	38¾	18¼	14	15¾								
2/9/84	40½	45¾	47½	60¼	38¾	34¼	45	27¼	24½	29½								

Specific Location
(if necessary)

15¼ 20¼

* peg installed 8½" to top

* " " 6¾ " "

Date 3/10/70

INITIAL DESCRIPTION

Status O.P. #6

Location

BAKER MINE RD PLOT

Number of arms 5

Height of tallest arm 62"

General comments: HEALTHY PLANT

ARM #3 IS THE ONLY ONE WITH A JOINT

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	62	56	48	32	7											

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/70	3-10-70 Annual	5 1/4	3 1/2	5 5/8	7 3/4	8 3/4											
	Total	5 1/4	3 1/2	5 5/8	7 3/4	8 3/4											
12/6/71	Annual	0	1/2	3/4	3 1/4	8											
	Total	5 1/4	4	5 3/4	11	16 3/4											
1-1-73	Annual	1/4	3/4	1/2	2	4	6										
	Total	5 1/2	4 3/4	6 1/4	13	20 3/4	6										
	Annual	3 3/4	3 1/2	4 1/2	5 1/4	7 1/4	1 1/4										
	Total	9 1/4	8 1/4	10 3/4	18 1/4	28	6 1/4										
7/4/75	Annual	3/4	2 1/4	1 3/4	2 3/4	3 1/2	1 1/2										
	Total	10	10 1/2	12 1/2	21	31 1/2	7 3/4										
12/24/75	Annual	2	2	2	2	2 3/4	4 1/2										
	Total	12	12 1/2	14 1/2	23	34 1/4	12 1/4										
1/13/77	Annual	1 1/2	3 1/4	3 3/4	4 1/2	3 1/4	6 3/4	4 3/4									
	Total	13 1/2	15 3/4	18 1/4	27 1/2	37 1/2	19	4 3/4									
1/27/78	Annual	3 1/4	3 3/4	4 3/4	3 1/2	4 1/4	9 1/2	8									
	Total	16 3/4	19 1/2	23	31	41 3/4	28 1/2	12 3/4									
79	Annual	3	3 1/4	4 1/4	5	3 3/4	4 3/4	6	12 1/2								
	Total	19 3/4	22 3/4	27 1/4	36	45 1/2	33 1/4	18 3/4	12 1/2								
1/21/80	Annual	2 1/2	3 3/4	4	3 3/4	4 3/4	7 1/4	8 1/2	5 1/4								
	Total	~~22 1/2~~	26 1/2	31 1/4	39 3/4	50 1/4	40 1/2	27 1/2	17 3/4								
2/3/81	Annual	2	2	2 1/2	3	3 3/4	5 1/2	3 1/2	7 3/4	4 1/2	5 1/4						
	Total	24 1/4	28 1/2	33 3/4	42 3/4	54	46	30 3/4	25 1/2	4 1/2	5 1/4						
4/17/81	Annual	2 1/4	1/4	3/4	2 3/4	3 1/4	3 3/4	4 1/2	5 1/4	1/4	1/2						
	Total	26 1/2	28 3/4	34 1/2	45 1/2	57 1/4	49 3/4	35 1/4	30 3/4	4 3/4	5 3/4						

GROWTH

INITIAL DESCRIPTION

Date:

P2

Cactus: OP # 6 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	53¾	47¼	67½	75½	34¼	30½	12½	19¼	10½	14½						

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1¼	3¾	2	3	4¼	4½	3¾	6¾	9¼	10						
	Total	27¾	32½	36½	48½	61½	54¼	39	37½	14	15¾						
3/9/84	Annual	4½	4½	4¼	5¼	5¼	5½	6¼	9	10½	13¾						
	Total	32¼	37	40¾	53¾	66¾	59¾	45¼	46½	24½	29½						
1/9/85	Annual	~~10½~~	9½	9	10¼	~~¾~~	~~-24?~~	4¾	~~-12?~~	8¾	11						
	Total	42¾	46½	49¾	64	~~61½~~ 40¼	37½	50	33¾	33¼	40½						
1-10-86	Annual	4¾	1½	2½	3¾	2¾	3¾	5	5½	7½	9						
	Total	46	48	52¼	67¾	43	41¼	55	39¼	40¾	49½						
1/2/87	Annual																
	Total	51	50	54¼	~~72¾~~ 72¾	44	44½	58	44½	45½	56½						
1/27/88	Annual																
	Total	49?	50½	57¼	26	45⅜	52½	61⅞	47⅛	50¼	61½						
1/18/89	Annual																
	Total	54¾	54	61	30½	47⅔	52½	65	53⅞	57⅞	70¾						
1/22/90	Annual																
	Total	55½	55	*35½	32¼	48¾	55¾	67	54¼	60½	74¾	Bud from branch #2 (~~west~~)					2½"
												Bud from branch #1 (west)					5½"
1/16/91	Annual																
	Total	57¼	57½	37	35	51½	58	69	56⅜	64	79½	16	17				
1-23-92	Annual																
	Total	59	59½	39½	38¾	54¾	62	72½	61	68	85¼	12/15½	12¾/15				
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

* New peg (26¼ d. distance between old & new peg)

6½, 9, 13 (17¾)

CACTUS @ P. #6 FIELD OBSERVATION SHEET #1

Date 3/10/70

1. ARM #3 HAS A JOINT 2½ FT UP

2. ARM #2 IS BEING RUBBED SLIGHTLY BY A PALO VERDE

1-1-73

Bud at base of arm #1 – 6 inches

2-19-74 New bud at base of #1 6½

Old bud 11¼. Peg installed at 6¼ ⟷ base to peg = 5"

2-4-75 New bud at base of #1 is 9"

12-24-75 " " " " " " " 13" – 17¾ } which is this? #7

1-27-78 new bud at arm #2 (at it's base) - now 1½".
arm #5 being rubbed by Palo verde.
new bud at base of arm #3 - now ½".

1-24-79 New peg put into Arm #6
Arm at base of #2 is 12½" long. Marked as arm #8

2-3-81 Arm #10 at base of #4
Arm #9 at base of #3

2/9/84 – arm #9 needs new wire (too tight)
" #7 " " tag

1-9-85 – old peg on arm #5 removed this date

Data Sheet

Cactus O.P. #7

Location

BAKER MINE RD PLOT

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/10/70	10	7½	8															
12/19/70	12½	12¼	13½															
12-6-71	14½	15½	16½											7¾				
1-1-73	16½	18½	20½															
2-12-74	21	25¼	26¾															
2-4-75	28½	30¾	32½															
12-24-75	26	34	35½	9	3½	4½	3							9				
1-1-77	29¼	38¼	38¾	6½	12	10½	10							14¼				
12/78	33"	43"	42"	19¼"	14¼	13¾	14											
1-24-79	36¾	47¼	46¼	16	19 6½	19½ 9¼	19 9											
11/01/80	39 ~~37¾~~	52¾	49¾	21	11	14½	13½											
2/3/81	41½	56½	53¼	25½	15½	19¼	18¼											
12-16-81	44¾	60½	56¼	29½	19½	24½	23½											
12-82-82	49½	65	61¼	36¼	25	29¾	29½											
2/9/84	54¼	70¼	65¾	42¾	31	36½	36¼											

Specific Location
(if necessary)

Date 3/10/70

INITIAL DESCRIPTION

Status O.P. #7

Location
BAKER'S MINE RD. PLOT

Number of arms 3

Height of tallest arm 34"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	34	31	17													

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/70	Annual	2½	4¾	5½													
	Total	2½	4¾	5½													
71	Annual	2	3¼	3													
	Total	4½	8	8½													
1-1-73	Annual	2	3	4													
	Total	6½	11	12½													
74	Annual	4½	6¾	6¼													
	Total	11	17¾	18¾													
75	Annual	2½	5½	5¾													
	Total	13½	23¼	24½													
75	Annual	2½	3¼	3													
	Total	16	26½	27½													
77	Annual	3¼	4¼	3¼	8½												
	Total	19¼	30¾	30¾	8½												
78	Annual	3¾	4¾	3¼	5¼												
	Total	23	35½	34	13¾												
79	Annual	3¾	4¼	4¼	4¼	19	19½	19									
	Total	26¾	39¾	38¼	18	19	19½	19									
1/21/80	Annual	2¼	5½	3¼	5	4½	5¼	4½									
	Total	47	45¼	41½	23	23½	24¾	23½									
2/ 3/81	Annual	2½	3¾	3½	4½	4½	4¾	4¾									
	Total	49½	49	45	27½	28	29½	28¼									
11/6/81	Annual	3¼	4	3	4	4	5¼	5¼									
	Total	52¾	53	48	31½	32	34¾	33½									

GROWTH

INITIAL DESCRIPTION

P. 2

Date:

Cactus: OP #7

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	24	23½	64	~~52½~~ 47¾	12½	10¼	10									

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	4¼	4½	5	6¾	5½	5¼	6									
	Total	57	57½	53	38¼	37½	40	39½									
2/9/84	Annual	5¼	5¼	4½	6½	6	6¾	6¾									
	Total	62¼	62¾	57½	44¾	43½	46¾	46¼									
~~1/5~~	Annual	~~5¾~~	~~6½~~	~~10½~~	~~4½~~	~~8¼~~	~~7¼~~	~~6¼~~									
/85	Total	56½	73¼	68	49¼	35	39½	40									
1/10/86	Annual	3¼	4	3¼	3	3	4¼	4¾									
	Total	59¾	77¼	71¼/16¼	52¼/12¼	38	43¾	44¾									
1/4/87	Annual																
	Total	62½	79¼	19¼	17	41½	47¾	49									
1/27/88	Annual																
	Total	65	81¼	21½	21⅝	44	51⅝	53⅛									
1/18/89	Annual																
	Total	68¼	83⅜	24	26¼	49⅛	56¼	57¼									
1/22/90	Annual																
	Total	70	85½	26	30	51½	59	60¼	Bud #2 (SSE) 5½" Long								
1/16/91	Annual																
	Total	73½	88	29½	34¼	56¼	63	65½	22¼								
1-23-92	Annual																
	Total	75¾	93	34	39¼	62½	67¼	70½	13¼/18½								
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS O. P. #7 FIELD OBSERVATION SHEET # 1

Date 3/10/70

HEALTHY PLANT

12-24-75 Three new buds at base of #1 are 9" 4½ and 3" respectively
Bud at the base of #3 is 3½" Now 12" + Now Arm #5

1-13-77 Buds on #1 are 14¼ - Now #4, - 4½ is now 10½" - 3" now 10"

1-27-78 #5 now 14¼" - not pegged
Buds on #1 are 13¾" - now #6, not pegged
14" - now #7, not pegged

1-24-79 Arm #5, #6, #7 pegged

7/21/80 Portion of Arms #3 + 6 eaten.
1-9-85 → Some damage to arm #3 and #5
1-9-85 → Some slight constriction on arm #6
1-10-85 → new peg on #3 & #4

Data Sheet

Cactus O.P. #8

Location

BAKER MINE RD. PLOT

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/10/70	5½																	
12/19/70	6¼																	
12-6-71	7¼																	
1-1-73	8¼	5¼																
2-12-74	9½	8¾ ~~3¾~~																
2-4-75	10½	5½																
12-24-75	11	6½																
1-13-77	13¼	10																
11/27/78	17	14																
1-24-79	18½	17¼	13	5½														
1/21/80	21	19¾	15¼	6½														
2/3/81	24¼	22¼	~~18¼~~ ~~8½~~	11														
12-16-81	15¾	24¼	9½	17¾ / 6¼														
12-14-82	18¾	28½	12½	10⅝														
2-9-84	22¾	32½	17¾	17¼														

Specific Location
(if necessary)

Date 3/10/70

INITIAL DESCRIPTION

Cactus O.P. #8

Location
BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 13"

General comments:
HEALTHY BUT A SMALL BASE

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	13															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/70	Annual	3/4															
	Total	3/4															
12/71	Annual	1															
	Total	1 3/4															
11/1/73	Annual	1	5 1/4														
	Total	2 3/4	5 1/4														
2/74	Annual	2/4	3 1/2														
	Total	3 1/2	8 3/4														
2/75	Annual	1	1 3/4														
	Total	4 1/2	10 1/2														
12/75	Annual	1/2	1														
	Total	5	11 1/2														
77	Annual	2 1/4	3 1/2														
	Total	7 1/4	15														
78	Annual	3 3/4	4														
	Total	11	19														
79	Annual	1 1/2	3 1/4	1/3	5 1/2												
	Total	12 1/2	22 1/4	1/3	5 1/2												
1/21/80	Annual	2 1/2	2 1/2	2 3/4	1												
	Total	15	24 3/4	15 3/4	6 1/2												
2/3/81	Annual	3 1/4	2 1/2	3	4 1/2												
	Total	18 1/4	27 1/4	18 3/4	11												
12/16/81	Annual	1 1/2	2	1	6 3/4												
	Total	19 3/4	29 1/4	19 3/4	17 3/4												

Growth

CONTINUATION Sheet.

Date 3-10-70

INITIAL DESCRIPTION

Status O.P. #8 P.2 Location

Number of arms _____

Height of tallest arm _____

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

~~2~~ 17½ 5 9¾ 11¾

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	3	3¼	3	4												
	Total	22¾	32½	23¾	21¾												
2/9/84	Annual	4	5	5¼	7¼												
	Total	26¾	37½	29	29												
1/9/85	Annual	~~-2~~	~~-2~~	~~1¾~~	~~6¾~~												
	Total	24¾	35½	21¼	22¼												
1/16/86	Annual	2¼	2½	3¼	4½												
	Total	27	38	24½	26¾												
1/7/87	Annual																
	Total	30	41¼	27¾	30¼												
1/27/88	Annual																
	Total	31½	42⅞	29¾	32¾												
1/18/89	Annual																
	Total	35¼	47¼	35½	37¼												
1/22/90	Annual																
	Total	37¼	99	36½	39½	Bud from #2 (SW) 9¼" Bud from #1 (N) 5½"											
1/16/91	Annual																
	Total	41¾	51¾	40½	42¾	11¼ / 11	12										
1-23-92	Annual																
	Total	46½	56	44½	47¼	20	17½										
	Annual																
	Total																
	Annual																
	Total																

Bud from #5 / Bud from #2 (NW) 2"

GROWTH RAW DATA

CACTUS O.P.#8 FIELD OBSERVATION SHEET #1

Date 3/10/70

1. PLANT HAS A VERY SMALL DIAMETER AT THE BASE.
2. TWO SPLITS IN THE SKIN NEAR THE BASE. EACH ABOUT 1" LONG

12/19/70
~~Two~~ Four new arm buds around base of plant

12-6-71

Top of plant damaged - new bud formed on top
One of last years buds now 1 1/4". Others still very small

2-12-74

* Peg installed in #2 at 3 3/4
Small arm bud at base of #1

2-4-75

#1 has turned yellow. Doesn't look too well

12-24-75

Bud at the base of #1 is 4 1/2" + now 4"

1/27/78 New bud on #1 - 2 1/2" tall - other bud now 11 3/4" tall

1-24-79 #3 from base of #1.
1-9-85 → deep arm constriction ~~below peg~~ 1/4" above base on * arm #1
1-10-86 → neg. #'s on annual growth chart may indicate failure to record a peg change during previous year.
1-18-89 3 inch bud under arm #2

Data Sheet

Cactus O.P. #9

Location

BAKER MINE RD PLOT

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/10/70	5½																	
12/19/70	9½																	
12-6-71	10¾																	
1-1-73	11¾	4																
2-12-74	13	5½																
2-4-75	15	10⅝																
12-24-75	15¼	12¾																
1-13-77	17½	20 6½																
VOL 78	20"	10¾																
1-24-79	22¾	13¾																
1/21/80	25	17¼																
2/3/81	26¾	19½																
12-16-81	29½	21¾																
12-14-82	33	24½																
2/9/84	36¾	28½																

Specific Location
(if necessary)

Date 3/10/70

INITIAL DESCRIPTION

Cactus O.P. #9

Location
BAKER MINE RD. PLOT

Number of arms 1

Height of tallest arm 20"

General comments:
HEALTHY

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	20															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/70	3-10-70 Annual	4%															
	Total	4%															
12/71	Annual	1¼															
	Total	5¼															
1/73	Annual	1	4														
	Total	6¼	4														
2/74	Annual	1¼	1½														
	Total	7½	5½														
2/75	Annual	2	4¾														
	Total	9½	10¼														
12/75	Annual	¾	2¼														
	Total	9¾	12½														
77	Annual	2¼	7¾														
	Total	12	20¾														
78	Annual	2½	4¼														
	Total	14½	24½														
79	Annual	2¾	3														
	Total	17¼	27½														
1/21/80	Annual	2¼	3½														
	Total	20	31														
2/31/81	Annual	1¾	2¼														
	Total	21¾	33¼														
12/16/81	Annual	2¾	2¼														
	Total	24½	35½														

Growth

Date: 3-10-70

INITIAL DESCRIPTION
P.2

Cactus: OP#9

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

14½ 13½ 14¾

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	3½	2¾														
	Total	28	38¼														
2/9/84	Annual	3¾	4														
	Total	31¾	42¼														
1-9-85	Annual	~~6½~~	~~13¼~~														
	Total	38¼	29	20 5/4													
1-10-86	Annual	¾	½	2¼													
	Total	39	29½	7½													
1/7/87	Annual																
	Total	39¾	30¼	11½													
1/27/88	Annual																
	Total	40¼	31⅛	15¼													
1/16/89	Annual																
	Total	42½	34¼	19½													
1/22/90	Annual																
	Total	43¼	34	20½	Bud from #1 (North side) 5" Long												
1/16/91	Annual																
	Total	45¾	37	23¼	12¼												
1-23-92	Annual																
	Total	47	38¾	26½	19¾												
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

CACTUS O. P. #9 FIELD OBSERVATION SHEET # 1

Date 3/10/70

HEALTHY

12-6-71

New 2" bud at base

1/27/78 holes at base + near peg of #1

2/9/84 new arm from ground (from base of #1) ca. 15 3/4" need pegging.

1-9-85 new arm (#3) pegged + tagged (see data sheet)

Data Sheet

Cactus OP #10

Location
BAKER MINE RD PLOT

	71	61	61	61	61	61	58	33	ARX # 13	2	*	*						
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3-12-70	9¼	9	10¼	9	8½	8¼	8¼	9¾	☆ 4¾	* 2								
12/19/70	11¾	11¼	12½	10¾	11%	10%	10¾	15%	☆ 9¾	* 7¼								
12-6-71	12½	11¼	13%	11¾	11¾	10½	12%	17%	☆ 10½	• 4½								
1-1-73	14¼	12¾	15¼	13½	13¼	12%	13½	20¼	~~☆ 12¾~~	~~* 13¾~~								
2-12-74	16%	14½	16¼	14¾	15¾	12¾	15%	24½	19¾	19¾	~~* 11½~~ 3½	1½	1¾					
2-4-75	17½	16%	18¼	15½	17¼	14½	16½	29¼	20%	19½	8½	9	6					
12-24-75	18¼	16%	19½	16¼	17¾	15	17½	31¼	21¾	21¼	13¼	13¾	9¼					
1-13-77	20½	17½	22	17¾	19¼	16¾	20	35¾	26¼	27¼	20¼	21/8	17½/7					
1-27-78	22¼	19	23¾	19	20½	18	21½	38½	28½	32	25½	14½	12¼	8				
1-24-79	23½	20	25¾	21¼	22¼	19	24¼	40½	32	36	30	21¼	17½	13½				
1/21/80	26½	22¼	26¼	23	24	21¼	27	43¼	35½	40	35	27¾	22½	18½				
2/3/81	27¼	22½	27¼	24¼	25½	22	27½	45	38½	44¼	38	32	25¾	22½				
12-17-81	28¾	24°	29°	25½	26½	23	29½	47¼	42¼	47°	40¾	36¾	30¼	27½				
12-14-82	30½	26%	30¾	26¾	25¼	24½	31½	49	45½	51½	45	41½	35½	32½				
2-9-84	34½	28¾	32¾	28½	31½	26¼	36	53½	49½	55¼	49	47¾	41½	38½				

Specific Location
(if necessary)

9 measured from 1st joint (lowest)

• " " " " " 5" to 1st joint

* Pg installed at 3½ on arm # "

Date 3/12/70

INITIAL DESCRIPTION

Status OP #10

Location
BAKER MINE RD PLOT

Number of arms 12

Height of tallest arm 71"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	71	61	61	61	61	61	58	33	13	*2	*	*				

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/70	Annual (3-10-70)	2½	2¼	2¼	1¾	2½	1¾	2½	5¼	5⅝	5¼	0	0				
	Total	2½	2¼	2¼	1¾	2½	1¾	2½	5¼	5⅝	5¼	0	0				
12/71	Annual	3/4	0	½	1	¾	½	1¼	2	¾	2¼	0	0				
	Total	3¼	2¼	2¾	2¾	3¼	2¼	3¾	7¼	5¾	7½	0	0				
1/73	Annual	1¾	1½	2¼	1¾	1½	1½	1½	3¼	2¼	9¼	0	0				
	Total	5	3¾	5	4½	4¾	3¾	5¼	10½	8	16¾	0	0				
2/74	Annual	1¾	1¼	1	1¼	2½	¾	1½	4¼	7	0	11½					
	Total	6¾	5½	6	5¾	7	4½	6¾	14¾	15	16¾	11½					
2/75	Annual	1½	1½	2	¾	1½	1¾	1½	4¾	¼	5¾	5					
	Total	8¼	7	8	6½	8½	6¼	8¼	19½	15¼	22½	16½					
12/75	Annual	¾	0	1¼	¾	½	½	1	2	1¾	¾	4¾					
	Total	9	7	9¼	6¼	9	6¾	8¼	21½	17	23¼	21¼					
1/77	Annual	2¼	1½	2½	1½	1½	1¾	2½	4½	4½	6	6½	7¼	8¼			
	Total	11¼	8½	11¾	7¾	10½	8½	10¾	26	21½	29¼	27¾	7¼	8¼			
1/78	Annual	1¾	1½	1¾	1¼	1¼	1¼	1½	2¾	2¼	4¾	5¼	6½	5¼	8		
	Total	13	10	13½	9	11¾	9¾	12¼	28¾	23¾	34	33	13¾	13½	8		
79	Annual	1¼	1	2	2¼	1¾	1	2¾	2	3½	4	4½	6¾	5¼	5½		
	Total	14¼	11	15½	11¼	13½	10¾	15	30¾	27¼	38	37½	20½	18¾	13½		
11/21/80	Annual	3	2¼	3/4	13/4	13¼	2½	6¾	3¾	3½	5	5	6½	5	5		
	Total	17¼	13¼	16¼	13	15¼	13½	21¾	34½	30½	43	42½	27	23½	18½		
1/31/81	Annual	¾	1¾	1	1¼	1½	¾	½	1¾	3	3¼	3	4¼	3¼	4		
	Total	18	15	17¼	14¼	16¾	14	22¼	36¼	33¾	46¼	45½	31¼	27	22½		
1/17/81	Annual	1½	1½	1¾	1¼	1	1	2	2¼	3¾	2¾	2¾	4¾	4½	5		
	Total	19½	16½	19	15½	17¾	15	24¼	38½	37½	49	48¼	36	31½	27½		

GROWTH

INITIAL DESCRIPTION

P.2

Date: 3-12-70

Cactus: OP #10

Location: 3m above RD. and 15m from east Rock CAIRN.

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

62 ?? ??

65 52 50¾ 52 52½ 70¼ 49¾ 56¾ 53½ 58¼ 14 54¼ 10½ 7¾ 4⅛

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1¾	2	¼	1¼	1¾	1½	2	1¾	3¼	4½	4¼	4¾	5¼	5		
	Total	21¼	18½	19¼	16¾	19½	16½	26¼	40¼	40¾	53½	52½	40¾	36¾	32½		
2/9/84	Annual	4	2¾	2	1¾	3¼	1¾	4½	4½	4	3¾	4	6¼	6	6		
	Total	25¼	21¼	21¼	18½	22¾	18¼	30¾	44¾	44¾	57¼	56½	47	42¾	38½		
1/9/85	Annual	11½	9¼	11¼	11½	11¼	9½	7	12½	7¼	2¼	2	5¾	1¾	4		
	Total	36¾	30½	35¼	30	34	27¾	37¾	57¼	52	59½	58½ / 52½	52¾	44½	42½		
1/10/86	Annual	1½	2	1¼	2¼	1¼	2¼	1¾	2½	3¼	2¼	4½	2¼	3¾	4½		
	Total	38¼ / 35	32⅓	36½	32¼	35¼	30 / 12½	39½	59¾ / 26¼	55¼ / 10	61¾ / 8½	57	55 / 13¾	48¼	47		
1/7/87	Annual																
	Total	36¼	32	38¾	34¾	36½	13¾	41½	28¾	12¼	10	60	17	51¾	49¾		
1/27/88	Annual																
	Total	38 3/8	33¾	40¾	37	38¾	15 5/8	44	31	14 5/8	13¾	61 7/8	19¼	55¼	52 3/8	10 / 5 7/8 (from base)	
1/18/89	Annual																
	Total	40	35½	41½	39¼	42	17¾	49	34½	17	17	65¼	22½	56½	56½	8	
1/22/90	Annual																
	Total	41	36¾	43	40¼	42¼	19	46¾	35¾	18	18¼	66½	24½	58	58¼	11	
1/16/91	Annual																
	Total	43	39	45½	42½	44½	20½	49½	38	19¼	20¾	69½	26½	61¾	62	14½	
1-23-92	Annual																
	Total	44¾	39¾	47½	43¾	46	21½	50½	40	21¼	23½	71½	29	61¾	64	17¼	
	Annual																
	Total																
	Annual																
	Total																

GROWTH RATE DATA

CACTUS O.P. #10 FIELD OBSERVATION SHEET #1

Date 3/12/70

1. THREE ARMS HAVE ONE JOINT EACH
2. ARM #10 HAS NO RING OR PEG. IT IS CLOSEST TO ARM #8 THE "BUD" IS 2" LONG.
3. TWO UNNUMBERED ARMS EXIST. BOTH ARE BASAL STUBS WITH DAMAGED GROWING TIPS.

---

1 arm #11 had damaged growing tip

1-1-73 Peg installed at 16½" on arm 9
" " " 7½" on arm 10
- yellow tips on arms

2-12-74 One of previous basal buds has budded & is now arm #11
arm #4 has new bud at 1 3/4"
arm #1 has new bud at 1 1/2

2-4-75 arm #1 has a bud 9"
arm #4 has a bud 6"

Tops of some arms (#'s 1, 10, 11) bright yellow

12-24-75 Bud on #9 is 3 3/8" now 7 3/4
" " #4 is 9 1/4" now 17 1/2 — no 13
" " #1 is 13 3/4 now 21 — no 13
no yellow tips

1-27-78 Bud off #9 is 15 3/4" - labeled #14, pegged
8" from top

#10 & #14 & #12 yellowish at tip

2/9/84 - arm #14 is growing out of arm #9. arm #14 needs new tag!
- between arm #10 & 11 at the base of arm 5 is an old, damaged arm of large diameter.
- new bud beginning at base of arm #11 (2")

1-10/86 - new ~~peg~~ #10
" " #8
" " #1
" " #12
#6
#9

1-10-86 - new bud base ~~between~~ #5 & 11 (6")
1-7-87 - new bud base between #3 & 11 (7") Not pegged
1-7-87 - ~~dam aged~~ bud at base between #3 & 11.
1-6-88 - New bud tagged - between 3 & 11

Data Sheet

Cactus: O.P. # 11

Location: BAKER MINE RD PLOT

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/15/70	6 3/4	3/8																
12/19/70	11	7 1/4																
12-6-71	12 3/4	10																
1-1-73	13 3/4	13 / 5 *																
2-12-74	16	12 1/4																
2-4-75	18	20																
12-24-75	18 3/4	23 1/2																
1-13-77	21 1/2	32																
1-27-78	25	39	2															
1-24-79	28	45 1/4	6															
1/21/80	29 3/4	48	13															
2/3/81	31	50 1/4	18 / 8															
12-16-81	31 1/4	51 1/2	12 3/4															
12-14-82	33	53 1/2	17 1/4															
2-9-84	34 1/4	56 1/4	25															

Specific Location (if necessary)

* new stake

Date 3/15/70

INITIAL DESCRIPTION

Cactus O.P. #11

Location
BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 33"

General comments: VERY HEALTHY

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	33	Bud														

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/70	3-15-70 Annual	4 1/4	7 1/4														
	Total	4 1/4	7 1/4														
12/71	Annual	1 1/4	2 3/4														
	Total	5 1/2	10														
1/73	Annual	1 1/2	3														
	Total	7	13														
2/74	Annual	2 1/4	7 1/4														
	Total	9 1/4	20 1/4														
2/75	Annual	2	7 3/4														
	Total	11 1/4	28														
12/75	Annual	3/4	3 1/2														
	Total	12	31 1/2														
77	Annual	2 3/4	8 1/2														
	Total	12 3/4	40														
78	Annual	3 1/2	7														
	Total	16 1/4	47														
79	Annual	3	6 1/4														
	Total	19 1/4	53 1/4														
1/21/80	Annual	1 3/4	2 3/4														
	Total	21	58	13													
2/3/81	Annual	1 1/4	2 1/4	5													
	Total	22 1/4	60 1/4	18													
12/16/81	Annual	1/4	1 1/4	4 3/4													
	Total	22 1/2	61 1/2	22 3/4													

GROWTH

INITIAL DESCRIPTION

P.2.

Date: 3-15-70

Cactus: OP #11

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

26¼ 13 13½

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1¾	2	4½													
	Total	24¼	63½	27¼													
2/9/84	Annual	1¼	2¾	7¾													
	Total	25½	66¼	35½													
1-7-85	Annual	~~9½~~	~~3¾~~	~~4½~~													
	Total	35	70 / 57	39¾ / 26¼	*												
1/10/86	Annual	0	0	1													
	Total	35	57	27¼													
1/7/87	Annual																
	Total	35¼	58	30¼													
1/27/88	Annual																
	Total	35½	58¼	31½													
1/28/89	Annual																
	Total	37	59¾	35													
1/22/90	Annual																
	Total	37	60½	34½													
1/16/91	Annual																
	Total	38¼	62½	37½													
1-23-92	Annual																
	Total	39¼	64	41½													
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

CACTUS O.P. #11 FIELD OBSERVATION SHEET #1

Date

3/15/70 1. A VERY SMALL 1/4 - 1/2 INCH ARM BUD AT BASE

1/27/78 Bud at base of #1 is 2"

1-29-79 Arm #3 is 6"

1-9-'85 * Arms 2 and 3 of O.P. #11 both measured from ground and peg to tip

Data Sheet

Cactus: O.P. #12 (42 36 17 2)

Location: BAKER MINE RD PLOT

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/15/70	8	8	7½	*1½														
12/19/70	10¼	10½	11¼	6½														
12-C-71	10½	11½	13¼	1½														
1-1-73	11½	12½	15¼	1½														
2-12-74	13¾	14⅝	18½	–	5¾	6¼												
2-4-75	15⅝	15¼	20¼		9½	10¼												
12-24-75	15¾	16	21½		*10¼	*11¾												
1-13-77	17½	16¾	23½		16	17¼												
1-27-78	19	17¾	25¾		21	21½												
1-24-79	21¼	19¼	27½		24	25¼												
1/21/80	24¼	21½	30¾		28½	29¼												
2-3-81	25¾	22¾	33		30¾	32												
12-16-81	27¾	23¾	35°		33½	34°												
12-14-82	31	25½	37¾		36½	36¾												
2-9-84	35¼	29½	43½	–	41	40¾												

Specific Location (if necessary)

#5 is off arm #1

#6 is off arm #2

both tags are rusted 1-27-78

Date 3/15/70

INITIAL DESCRIPTION

ctus O.P. # 12

Location
BAKER MINE RD PLOT

Number of arms 4

Height of tallest arm 42"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	42	36	17	*2												

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual	2 1/4	2 1/2	3 3/4	0												
	Total	2 1/4	2 1/2	3 3/4	0												
	Annual	1/4	1	2	0												
	Total	2 1/2	3 1/2	5 3/4	0												
	Annual	1	1	2	0												
	Total	3 1/2	4 1/2	7 3/4	0												
	Annual	2 1/4	1 1/2	3 1/4	0												
	Total	5 3/4	6	11	0	5 3/4											
	Annual	1 1/4	1 1/4	1 3/4	0	3 3/4											
	Total	7	7 1/4	12 3/4	0	9 1/2	14 1/4										
12/75	Annual	3/4	3/4	1 1/4	–	3 3/4	3 1/2										
	Total	7 3/4	8	14	–	13 1/4	17 3/4										
	Annual	1 3/4	3/4	2	–	5 3/4	5 1/2										
	Total	9 1/2	8 3/4	16	–	19	23 3/4										
	Annual	1 1/2	1	2 1/4	–	5	4 1/4										
	Total	11	9 3/4	18 1/4	–	24	27 1/2										
79	Annual	2 1/4	1 1/2	1 3/4	–	3	3 3/4										
	Total	13 1/4	11 1/4	20	–	27	31 1/4										
1/21/80	Annual	3	2 1/4	3 1/4	–	4 1/2	4										
	Total	16 3/4	13 1/2	23 1/4	–	31 1/2	35 1/4										
2/3/81	Annual	1 1/2	1 1/4	2 1/4	–	2 1/4	2 3/4										
	Total	18 1/4	14 3/4	25 1/2	–	33 3/4	38										
12/16/81	Annual	2	1	2	–	2 3/4	2										
	Total	20 1/4	15 3/4	27 1/2	–	36 1/2	40										

Growth

INITIAL DESCRIPTION

Date: 3-15-70 P.Z

Cactus: OP#12 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

62½ 28 9½ 3 6

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	3¼	1¾	2¾	–	3	2¾										
	Total	23½	17½	30¼	–	39½	42¾										
2/9/84	Annual	4¼	4	5¾	–	4½	4										
	Total	27¾	21½	36	–	44	46¾										
1/9/85	Annual	9¼	9¼	10½		?	?										
	Total	~~37~~	~~30¾~~	~~46½~~		~~43~~	~~42¾~~										
1/9/85	Annual	0	0	0		0	0										
	Total	37	30¾	46½		43	42¾										
11/10/86	Annual	2	1	3		1½	1										
	Total	~~39 16½~~	31¾	49½		44½	43¾										
1/7/87	Annual																
	Total	12	32¾	52	–	45¾	45										
1/27/88	Annual																
	Total	13¾	34¼	54½	–	46¾	45½										
1/18/89	Annual																
	Total	17	36¾	59	–	49½	38⅝*										
1/22/90	Annual																
	Total	18¾	38¼	60¾	–	50½	49½										
1/16/91	Annual																
	Total	20¼	40½	63	–	52	51¼										
1-23-92	Annual																
	Total	22½	43	66½	–	53½	54¼										
	Annual																
	Total																

DUPLICATE Recordings ?

GROWTH

RAW DATA

* probably 48¾

CACTUS O.P # 12 FIELD OBSERVATION SHEET # 1

Date 3/15/70

1. ARM #4 IS AN ARM BUD AT THE BASE OF ARM# 1 IT APPEARS DAMAGED ON THE GROWING TIP AND ONE SIDE

2. A SMALL SPINED BUMP ON THE BASE OF ARM # 1 & WEST OF ARM #4 MAY BE ANOTHER ARM BUD. IT IS NOW ALMOST A SPHERE, 1/4" IN DIAMETER.

---

1 arm # 4 is still damaged

2 small spined Bump unchanged

1-1-73 Growing tip on arm 4 (bud on arm D is damaged and has put out new bud (1 inch)

Bud on base of #2 $6\frac{1}{4}$"

New Bud at base of #1 is $5\frac{3}{4}$

dead buds on #1 not growing

2-4-75 Bud at base of #1 is $9\frac{1}{2}$

" " " " #2 is $14\frac{1}{4}$

3-2-75 Bud at base of #1 is $13\frac{1}{4}$ with a stalk at $10\frac{1}{4}$.

" " " " #2 " $17\frac{3}{4}$ " " " " " $\frac{3}{4}$

1984 Odd bud at base of arms 1, 5 + 3. (2")

1-9-85 O.P. #12, a bud between arms 3 + 5 at base - size 2" - dead tip

1-10-85 new pad on #1

1-7-87 #4 Arm still damaged, about 1" arm.

1-27-88 One bud at base of plant chewed off.

Data Sheet

Name O.P #13 — Location BAKER Mine RD PLOT

	54	53	49	47	44	48	42	37	10½	8	16	5	5½	24				
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/15/70	7½	7½	8¼	8	8½	7¼	9	6¾	*10½									
12/19/70	10⅝	9¾	10¼	10⅝	10¾	9½	12½	11¼	*17⅞									
12-6-71	11⅝	11⅝	10¼	10¾	11½	10¼	14⅝	13¼	11¾	4¾	5							
1-1-73	11¾	11¾	10¾	11¾	12¼	11¾	15¾	14½	15½	5¾	8¼	3½	5¼	4				
2-12-74	14⅝	13¾	13½	13⅝	14½	13¾	18¾	17⅝	22½	*2¾	*4¼	3¼	3¾	5½	4¾			
2-4-75	15¾	15¼	14¼	14½	15¾	15½	21½	18¼	26⅝	6¾	8¾	4½	5½	8¼	9½	2		
12-24-75	16¾	16½	15¼	15½	17⅝	16⅝	23⅝	20⅝	28¾	8¾	11½	6½	9½	11⅝	13	6		
1-13-77	18½	17¾	16½	17	18	18	24¾	21½	32½	14	17¾	9¾	14¼	16¼	19⅛ 7¼	12		
1-27-78	19¼	18¼	17¾	18	19	19¼	26¼	21¾	34½	17¼	22¼	11½	17¼	21	13	23½	2½	
1-24-79	21½	20	19¾	20	21¼	21	28¾	24	38	20½	26	14½	21¼	24⅝ 6¾	18¼	24½ 9	7	
1/21/80	23¾	21¾	21½	21¾	22⅜	23½	30¾	25¾	40	24¼	29½	15½	25	11¼	23⅛	14¼	16¾	
2-3-81	25½	23½	22¾	23	24	24¾	31¾	27½	42	26½	32¾	15¾	28	14¾	27⅛	18	18½ 8	
12-16-81	26¾	24½	24⅝	23¾	24¾	26¼	33⅛	29⅝	43¾	29	35½	12½	30½	18⅛	30¾	21½	13¾	
12-14-82	28¼	26½	25⅜	25½	26	29½	35–	31	46	32	39¼	20	33½	22	35½	26¼	19¼	
2-9-84	29¾	27¾	27¾	27¾	28	30½	37	33	48¾	36¼	44¾	22¼	36½	29½	40½	31	25	

Specific Location (if necessary)

*peg installed 7½" from top

Date 3/15/70

INITIAL DESCRIPTION

Status O.P. # 13

Location
BAKER MINE RD PLOT

Number of arms 9

Height of tallest arm 54"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	54	53	49	47	44	48	42	37	10½							

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	2½	2¼	2⅝	2⅝	2¼	2¼	3½	4½	6½							
	Total	2½	2¼	2⅝	2⅝	2¼	2¼	3½	4½	6½							
12/71	Annual	1	1¼	0	¾	¾	¾	1½	2	4¼							
	Total	3½	3½	2	2¾	3	3	5	6½	10¾							
1/73	Annual	¾	¾	½	1	¾	1½	1¾	1¼	3¾							
	Total	4¼	4¼	2½	3¾	3¾	4½	6¾	7¾	14½							
2/74	Annual	2¼	2	2½	1¼	2¼	2	3	2½	7							
	Total	6½	6¼	5	5	6	6½	9¾	10¼	21½							
2/75	Annual	1¾	1½	1	1½	1¼	1¾	2¾	1¼	3½	4	4½	1¼	1¾	2¾		
	Total	8¼	7¾	6	6½	7¼	8¼	12½	11½	25	4	4½	1¼	1¾	2¾		
12/75	Annual	1	1¼	1	1	1¼	½	1½	1¾	2¾	2	2¾	2	4	2¾		
	Total	9¼	9	7	7½	8½	8¾	14	13¼	27¾	6	7¼	3¼	5¾	5½		
1/77	Annual	1¾	1¼	1¼	1½	1	2	1¾	1½	3¾	5¼	6¼	3¼	4¾	5¼	5¼	
	Total	11	10¼	8¼	10	9½	10¾	15¾	14¾	31½	11¼	13½	6½	10½	10¾	5¼	
1/78	Annual	¾	½	1¼	1	1	1¼	1½	1¼	2	3¼	4½	1¾	3	4¾	5¾	
	Total	11¾	10¾	9½	11	10½	12	17¼	16	33½	14½	18	8¼	13½	15½	11	
79	Annual	2¼	1¾	2	2	2¼	1¾	2½	2¼	3½	3¼	3¾	3	4	3¼	5¼	24½
	Total	14	12½	11½	13	12¾	13¾	19¾	18¼	37	17¾	21¾	11¼	17½	18¾	16¼	24½
1/31/80	Annual	2¼	1¾	1¾	1¾	1½	2¼	2	1¾	2	3¾	3½	1	3¼	3	5	5¼
	Total	16½	14¼	13¼	14¾	14¼	16	11¾	20	39	21½	25¼	12¼	21¼	21¾	21¼	29¾
2/31/81	Annual	1¾	1¾	1¼	1¼	1¼	1½	1	1¾	2	2	2¾	¼	3	3½	5	3¾
	Total	18	16	14½	16	15½	17½	12¾	21¾	41	23½	28	12½	24¼	25¼	26¼	33½
12/16/81	Annual	1¼	1	1¼	¾	¾	1½	¾	1½	1¾	2½	3¼	1¾	2½	3¾	3½	3½
	Total	19¼	17	15¾	16¾	16¼	19	13½	23¼	42¾	26	31¼	14¼	26¾	29	29¾	37

GROWTH

INITIAL DESCRIPTION

Date: 3-15-70 P. 2

Cactus: OP #13 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

#17 on next page

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

											?	?	?	?	old ?		
		46½	45½	40¾	39	35½	40¾	33	30¼	9½	8	16	5	38	23½	11	19½
Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1½	2	1¾	1¾	1¼	3¼	1½	2	2¼	3	3¾	2½	3	3½	4¾	4¾
	Total	20¾	19	17½	18½	17½	22¼	15	25¼	45	29	35	16¾	29¾	32½	34½	41¾
2/9/84	Annual	1½	1¼	2	2¼	2	1	2	2	2¾	4¼	5½	2¼	3	5½	5	4¾
	Total	22¼	20¼	19½	20¾	19½	23¼	17	27¼	47¾	33¼	40½	19	32¾	38	39½	46½
1/9/85	Annual	8	8½	9½	7¼	10¼	7¾	0	5¾	2¾	4¼	6¾	5¼	5¼	1/6	3¾	6½
	Total	30¼	28¾	29	28	29¾	31	17	33	50½	37½	47¼	24¼	38 / 5½	54 T / 30½	43¼	53 T / 33½
1/10/86	Annual	¼	¼	¼	¼	¼?	1	21	0	1¼	2½	2	1½	1½	1½	3	2½
	Total	30½	29	29¼	28¼	29½	32	38	33	51¾	40	49¼	25¾	7	32	46¼	36
1/7/87	Annual																
	Total	31	29½	29¾	28	29	32	37	33	52	41¾	50½	27¾	8½	34¼	47½	38
1/27/88	Annual																
	Total	31¾	30¼	30	29⅜	30½	32¾	37¾	33⅛	52⅝	43¼	50¾	29½	9⅜	35¼	48⅞	38
1/18/89	Annual																
	Total	32¼	31¼	31½	29¾	30½	37¼	37¾	33¼	54¼	43½	53⅝	31¾	11	37½	50	40
1/22/90	Annual																
	Total	32¾	31½	31	30¼	31¼	34½	37¾	33¼	54½	44½	53¾	33	11¼	38¼	51¾	40¾
1/16/91	Annual																
	Total	33¼	32	31¾	30¼	31½	35½	37½	34¼	55½	45½	54¼	34½	12½	39½	52¾	41¾
1-23 ~92	Annual																
	Total	33¾	33	32	30½	31¾	36½	39	35½	56	46	55¼	35½	13¼	40½	53¾	42½
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CONT.

Date

INITIAL DESCRIPTION

Specimen OP#13

Location

Number of arms 17 as of 1984

Height of tallest arm _____

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Growth Record

Date	Arm #	17	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
79	Annual	7															
	Total	7															
11/21/80	Annual	9 3/4															
	Total	16 3/4															
2/3/81	Annual	1 3/4															
	Total	18 1/2															
12/16/81	Annual	5 3/4															
	Total	24 1/4															
12/14/82	Annual	5 1/2															
	Total	29 3/4															
2/9/84	Annual	5 3/4															
	Total	35 1/2															
1/9/85	Annual	~~6 3/4~~															
	Total (T)	~~42~~ 29															
1/10/86	Annual	3 3/4															
	Total	32 3/4															
1/7/87	Annual																
	Total	35 3/4															
1/27/88	Annual																
	Total	38															
1/18/89	Annual																
	Total	40 1/2															
1/22/90	Annual	42															
[redacted]	Total																

GROWTH RAW DATA

INITIAL DESCRIPTION

Date:

(CONT.)

Cactus: OP #13 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

13

Date	Arm #	17	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/16/91	Annual																
	Total	44															
1-23-92	Annual																
	Total	45¾															
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
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	Annual																
	Total																

CACTUS O.P. #13 FIELD OBSERVATION SHEET #1

Date 3/15/70

1. ARM #9 HAS NO PEG

12-6-71 arm bud at base of #5 is 5" long
arm bud at base of plant, coming out between arms #6 & 4 is 4 3/4" long.
Two small buds coming between the bases of arms #1 & 2

1-1-73 - Bud at base of #5 - 8 1/4" (=#11)
Bud at base of #6 & 4 - 5 3/4 3/3 (=#10)
Buds " " " 1 & 2 - 5 1/4 inches (=#13)
3 1/2 inches (=#12)
Bud at base of arm 8 - 4 3/4 inches (=#14)
} arm bands to be put on next year.

Bud at base of #6 is 4 3/4"

2-4-75 Bud at base of #6 is 9 1/2"
New bud at base of #7 is 2"

12-24-75 Bud on #6 is 13" now 18 1/4" Arm #15
" " #7 " 6" now 12" 1-13-77

1-27-78 Bud at base of #9 is 2 1/2"
" " " " #7 " 23 1/2"

1-24-79 -
1-9-85 → arm #16 at 33 1/2" (good near.) - needs new label
1-9-85 → arm 13-12 had old ingrown wire near peg (2" above it); plant deeply cut upon removing old wire.
1-9-85 → arm #13 (replaced peg); ~~from old peg to tip = 38"~~; ~~new peg to tip 5 1/2"~~

1-9-85 - o.p.#13 arm # 13. Old peg removed!

1-9-85 - o.p.#13 arm 14, 30½" ~~correct measurement~~ apparently last years peg ~~recorded~~. ~~arm #14 measured~~ from ground + peg to tip.

1-9-85 - op#13 arm 11, same as above ~~statement~~ (see data sheet)

1-9-85 - op# 13 arm 16, measured from ground + peg to tip. (see data sheet)

1-9-85 - op# 13 arm 12, ~~show drag reduction~~ about 15½" above peg.

1-10-85 freeze damage w side of #13, #14, #8

1-27-88 Arm # 8, 14, & 13 turning yellow/brown on west side affecting 3 or 4 ridges

Date 3/15/70

INITIAL DESCRIPTION

Betus O.P. #14

Location
BAKER MINE RD P20T

Number of arms 4

Height of tallest arm 34"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	34	33	24	16												

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	2 1/2	1 1/2	3 1/4	7												
	Total	2 1/2	1 1/2	3 1/4	7												
12/71	Annual	1 1/4	1/4	1/2	2												
	Total	3 3/4	1 3/4	3 3/4	9												
1/73	Annual	1	1	1 1/4	3 3/4												
	Total	4 3/4	2 3/4	5	12 3/4												
2/74	Annual	4	2 1/2	3	4												
	Total	9 3/4	5 1/4	8	16 3/4												
2/75	Annual	1 1/4	1/4	1 1/4	3 1/2												
	Total	10	5 1/2	9 1/4	20 1/4												
12/75	Annual	1/2	1	1	1 3/4												
	Total	10 1/2	6 1/2	10 1/4	22												
1/77	Annual	1/2	1 3/4	1 1/4	2 3/4	6 1/2											
	Total	11	8 1/4	11 1/2	24 3/4	6 1/2											
1/78	Annual	1 3/4	1 1/2	0	2 1/2												
	Total	12 3/4	9 3/4	11 1/2	27 1/4												
79	Annual	1 1/4	1 3/4	1 1/4	3 1/4	6 1/4											
	Total	14	11 1/2	12 3/4	30 1/2	12 3/4											
1/21/80	Annual	~~3 3/4~~	~~2 3/4~~	1/2	3 3/4	4 1/4											
	Total	17	13 1/2	13 1/4	34 1/4	17											
2/3/81	Annual	1 1/4	1 1/2	1	2 1/2	3 1/4											
	Total	18 1/4	15	14 1/4	36 3/4	20 1/4											
12/16/81	Annual	1	1 3/4	1	2 1/2	3 1/4											
	Total	19 1/4	16 3/4	15 1/4	39 1/4	23 1/2											

Growth

Data Sheet

Cactus OP #14

Location
BAKER MINE RD. PLOT

	34	33	24	16														
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/15/70	6½	7½	6¼	6¼														
12/19/70	9⅝	9⅝	9½	13¼														
12-6-71	10¼	9¼	10⅝	15¼														
1-1-73	11¼	10¼	11¼	19⅝														
2-12-74	15¼	12¾	14¼	23⅝														
2-4-75	16½	13⅝	15½	26½	2¾													
12-24-75	17	14⅝	16½	28¼	13½													
1-13-77	17½	15¾	17¾	31	20													
1-27-78	19¼	17¼	17¾	33½	13¼													
1-24-79	20½	19	19	36¾	19½													
1/21/80	23½	21	19½	40½	23¾													
2/3/81	24¾	22½	20½	43	27													
12-16-81	25¾	24¼	21½	45½	30¾													
12-14-82	27	25½	22½	48	34½													
2-9-84	30½	27½	25¼	52	41¾	4												

Specific location
(if necessary)

INITIAL DESCRIPTION

Date: 3-15-70 P. 2

Cactus: OP#14 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

27½ 25½ 17¾ 9¾ 13 10¾

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1¼	1¼	1	2½	3¾											
	Total	19½	18	16¾	41¾	27¼											
2/9/84	Annual	2½	2	2¾	4	7¼											
	Total	22	20	19½	45¾	34½											
L-9-85	Annual	~~10½~~	~~9~~	~~6½~~	~~8¼~~	~~11¾~~											
	Total	32½	29	26	54	46¼	15¾ 4½										
1/10/86	Annual	2	¾	½	1¾	1½	9¾										
	Total	34½	29¾	27½	55¾	47¾	14¼										
1/7/87	Annual																
	Total	36½	31¼	28½	58	50	20¼										
1/27/88	Annual																
	Total	37	32⅛	29	59½	51½	23½										
1/18/89	Annual																
	Total	38⅜	33¼	30	161	54½	28⅝										
1/22/90	Annual																
	Total	40	34¼	31	61½	56¼	33½										
1/16/91	Annual																
	Total	41	35½	31¾	62½	58	38										
1-23-92	Annual																
	Total	43	36½	33½	63½	60¾	44½										
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

CACTUS OP #14 FIELD OBSERVATION SHEET #1

Date 3/15/17

1. ARM #2 HAS BEEN RUBBED BY A BRANCH NEAR THE TOP.

2-12-74 New bud on #1 at 2 3/4
arm #2 still being rubbed

12-75 Bud at base of #1 now 13 1/2" Now 70" + Arm #5

1-3-81 #3 arm tip rubbed by overhanging tree

7/9/84 base of arm #2 new arm has begun growth (4")
1-9-85 - added peg to new arm (#6)
1-9-85 - new arm (#6) covers end of arm #2. measured of #6 from base to tip

Data Sheet

Cactus O.P. #15

Location
BAKER MINE RD PLOT

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/15/70	* 4 1/4																	
12/14/70	* 4 3/4																	
12-6-71	5 0/0																	
1-1-73	5 3/4																	
2-12-74	7 1/4																	
2-4-75	8 0/0																	
12-24-75	8 1/4																	
1-13-77	9 1/2																	
1-27-78	11 1/4																	
1-24-79	11 3/4																	
1/21/80	14 1/4																	
2/3/81	15 1/2																	
12-16-81	17 1/4 / 5 3/4																	
12-14-82	7 1/2																	
2-9-84	10 3/4																	

Specific location (if necessary)

SMALL CAIRN S.W. OF BUSH

~~DUE NORTH OF SMALL ROCK CAIRN IN A SANGRE DE-~~

DRAGO BUSH

16 Feet S 15° W OF OP #16 IN SANGRE DE

DRAGO

Date 3/15/70

INITIAL DESCRIPTION

tus O.P. # 15

Location
BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 4"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	4															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1/2															
	Total	1/2															
2/71	Annual	1/4															
	Total	3/4															
1/73	Annual	3/4															
	Total	1 1/2															
2/74	Annual	1 1/2															
	Total	3															
2/75	Annual	3/4															
	Total	3 3/4															
12/75	Annual	1/4															
	Total	4															
1/77	Annual	1 1/4															
	Total	5 1/4															
1/78	Annual	1 3/4															
	Total	7															
79	Annual	1/2															
	Total	7 1/2															
1/21/80	Annual	2 1/2															
	Total	10															
7/3/81	Annual	1 1/4															
	Total	11 1/4															
12/16/81	Annual	1 3/4															
	Total	13															

Growth

INITIAL DESCRIPTION

P.2

Date: 3-15-70

Cactus: OP #15

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

~~8~~ 11½

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1¾															
	Total	14¾															
2/9/84	Annual	3¼															
	Total	18															
1/9/85	Annual	~~2½~~															
	Total	T 20½ / 11¾															
1/10/86	Annual	0															
	Total	11¾															
1/7/87	Annual																
	Total	12¼															
1/27/88	Annual																
	Total	13															
1/16/89	Annual																
	Total	15½															
1/22/90	Annual																
	Total	17															
1/16/91	Annual																
	Total	19¾															
1-23-92	Annual																
	Total	23½															
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS OP # 15 FIELD OBSERVATION SHEET # 1

Date 3/15/70

1. EAST SIDE WAS CHEWED OUT IT APPEARS TO HAVE HEALED

---

no rust & no sticks

1-9-85 - 20½" from ground; 11¾ from peg. ←

1-27-88 Looks necrotic

INITIAL DESCRIPTION

Date:

Cactus: Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
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	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																

Data Sheet

Cactus O. P. #16

Location BAKER MINE RD PLOT

	32	24	11	ARM #														
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/15/70	7¼	6½	5¼															
12/19/70	8¾	9⅛	10⅛															
12-6-71	9¼	10⅝	13½															
1-1-73	9¼	10¾	17¼															
2-12-74	9¾	12½	20¾															
2-4-75	10½	13½	24½															
12-24-75	10½	13½	25¼															
1-13-77	12	15 11/4	30															
1-27-78	12"	19¾"	34¾"															
12-79	15	21¾	37¼															
1/21/80	17½	25¼	41½															
2/3/81	19¾	28½	44¼															
12-16-81	21¾	30½	45¾	*														
12-1482	24¾	34	49	6½														
2-9-84	28¾	36½	51	16½														

Specific Location (if necessary)

TOP TO PEG 6½ 12/14/82

Date 3/15/70

INITIAL DESCRIPTION

...ctus O.P. #16

Location
BAKER MINE RD PLOT

Number of arms 3

Height of tallest arm 32

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	32	24	11													

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/70	Annual	1 1/2	2 1/2	4 3/4													
	Total	1 1/2	2 1/2	4 3/4													
	Annual	1/2	1	3 1/2													
	Total	2	3 1/2	8 1/4													
	Annual	0	3/4	3 3/4													
	Total	2	4 1/4	12													
	Annual	1/2	1 3/4	3 1/2													
	Total	2 1/2	6	15 1/2													
	Annual	3/4	1	3 3/4													
	Total	3 1/4	7	19 1/4													
	Annual	0	0	3/4													
	Total	3 1/4	7	20													
	Annual	1 1/2	1 3/4	4 3/4													
	Total	4 3/4	8 3/4	24 3/4													
	Annual	0	4 1/2	4 3/4													
	Total	4 3/4	13 1/4	29 1/2													
79	Annual	3	2	2 1/2													
	Total	7 3/4	15 1/4	32													
11/21/80	Annual	2 1/2	3 1/2	4 1/4													
	Total	9 1/4	18 3/4	36 1/4													
2/24/81	Annual	2 1/4	3 1/4	2 3/4													
	Total	11 1/2	22	39													
12/16/81	Annual	2	2	1 1/2													
	Total	13 1/2	24	40 1/2													

Growth

INITIAL DESCRIPTION

p.2

Date: 3-15-70

Cactus: OP #16

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

29 3/4 17 1/2 5 3/4 ? (10)

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	3	3 1/2	3 1/4													
	Total	16 1/2	27 1/2	43 3/4	6 1/2			GROWTH									
2/9/84	Annual	4	2 1/2	2	10												
	Total	20 1/2	30	53	16 1/2												
1/9/85	Annual	~~9 1/4~~	8	~~1/4~~	~~7 3/4~~			RAW									
	Total	29 3/4	38	52 3/4	24 1/4			DATA									
1/10/86	Annual	3/4	1/2	3/4	6												
	Total	30 1/2	38 1/2	53 1/2	30 1/4												
1/7/87	Annual																
	Total	32 1/4	39 1/2	54 1/2	35 1/4												
1/27/88	Annual																
	Total	33	39 1/2	54 3/4	39 3/4												
11/6/89	Annual																
	Total	35	42	56 7/8	44 7/8												
11/22/90	Annual						plant looks anemic										
	Total	35 1/4	42 1/2	56 1/4	46 1/4												
11/16/91	Annual																
	Total	37 3/4	44 1/2	58 3/4	50 3/4												
1-23-92	Annual																
	Total	39 1/2	45 1/2	60	49 1/2												
	Annual																
	Total																
	Annual																
	Total																

CACTUS O.P. # 16 FIELD OBSERVATION SHEET # 1

Date 3/15/70

HEALTHY

1-1-73 Healthy
1/27/78 Healthy

2/9/84 arm # 4 needs new wire & tag.
1/9/85 arm #3 measured 2 x . 52 3/4 is an accurate measurement.
11/4/90 plant looks anemic

Data Sheet

Cactus O.P. #17

Location
BAKER MINE RD PLOT

	24	24	20	9	ARM #													
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/15/70	6 3/4	7 1/2	7	5 1/2														
12/19/70	8 1/4	9 1/2	9 0/0	7 3/4														
12-6-71	9 1/4	11 0/0	10 1/4	9 0/0														
1-1-73	10 1/4	13 0/0	11 3/4	11 1/4														
2-12-74	12 1/2	15 3/4	14 1/4	13 1/2														
2-4-75	14 1/4	17 1/4	16 0/0	15 1/2	4 1/4													
12-24-75	15 0/0	18 0/0	16 3/4	16 1/4	11 1/2													
1-13-77	16 1/2	19 1/2	18 1/4	18 1/4	17 1/2 7 1/2													
1-27-78	18 3/4	20 3/4	20 0/0	21 0/0	12 1/4	3 1/2												
1-24-79	19 1/2	22 1/4	21 1/2	22 1/4	16 1/2	8 3/4												
1/21/80	21	24 1/2	22 1/2	23 1/2	19 1/2	14												
2/3/81	23 1/4	26 1/2	24	24 3/4	22 1/2	20 1/2 7												
12-16-81	24 1/2	28 1/4	25 0/0	26 1/2	24 0/0	12 0/0												
12-14-82	27 1/2	30 1/4	26 1/4	28 1/4	25 0/0	19 0/0												
2-9-84	32 3/4	35 3/4	28 3/4	32 1/2	29 1/4	27 1/4												

Specific Location
(if necessary)

Date 3/15/70

INITIAL DESCRIPTION

otus OP #17

Location
BAKER MINE RD PLOT

Number of arms 4

Height of tallest arm 24

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	24	24	20	9												

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/70	Annual	1½	2⅝	2⅝	2¼												
	Total	1½	2⅝	2⅝	2¼												
	Annual	1	1½	1¼	1¼												
	Total	2½	3½	3¼	3½												
	Annual	1	2	1½	2¼												
	Total	3½	5½	4¾	5¾												
	Annual	2¼	2¾	2½	2¼												
	Total	6¾	8¼	7¼	8												
	Annual	1¾	1½	1¾	2												
	Total	8½	9¾	9	10												
	Annual	¾	¾	¾	¾												
	Total	9¼	10½	9¾	10¾												
	Annual	1½	1½	1½	2	6											
	Total	10¾	12	11¼	12¾	6											
	Annual	2¼	1¼	1¾	2¾	4¾											
	Total	11	13¼	13	15½	10¾											
79	Annual	¾	1½	1½	1¼	4¼	8¾										
	Total	11¾	14¾	14½	16¾	15	8¾										
1/21/80	Annual	1½	2¼	1	¼	3	5¼										
	Total	13¼	17	14½	17	18	14										
2/3/81	Annual	2¼	2	1¼	1¼	3	6½										
	Total	15½	19	15¾	18¼	21	20½										
12/16/81	Annual	1¼	1¾	1	1¾	1½	5										
	Total	16¾	20¾	16¾	20	22½	25½										

Growth

Date: 3-15-70

INITIAL DESCRIPTION

p.2

Cactus: OP #17

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

17¼ ~~44~~ 13 3½ 9¾ 13½

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	3	2	1¼	1¾	1	7										
	Total	19¾	22¾	18	21¾	23½	32½				GROWTH						
2/9/84	Annual	5¼	3½	2½	4¼	4¼	8¼										
	Total	25	26¼	20½	26	27¾	40¾										
11/9/85	Annual	~~9½~~	~~9½~~	~~9¾~~	~~7½~~	~~3½~~	~~7¾~~										
	Total	34½	35¾	30¼	33½	31¼	32				RAW DATA						
5/10/86	Annual	1½	1½	¾	1½	1¼	2½										
	Total	36	~~37¼~~ 9¾	31	35	32½	34½										
1/7/87	Annual																
	Total	38	11½	32¼	36	34	37¾										
1/27/88	Annual																
	Total	39¾	12¼	33½	37	35¼	40⅜										
1/14/89	Annual																
	Total	41¾	15	35½	39½	38¼	44⅜										
1/22/90	Annual										new arm unpegged (#7) to SE						
	Total	45	17¼	37½	42	39⅛	46½	6½									
1/16/91	Annual																
	Total	49	19½	39	49	41	48¾	19									
1-23-92	Annual																
	Total	53	22½	42	48¾	44½	53	13½/15½									
	Annual																
	Total																
	Annual																
	Total																

CACTUS O.P. # 17 FIELD OBSERVATION SHEET # 1

Date 3/15/70

HEALTHY

2-4-75 new bud at base is 4 1/4"

12-24-75 " " " " " 11 1/2"

1-13-76 - - - - - 17 1/4" Now Arm 5

1-27-78 new bud on #3 is 3 1/2"

-24-79 Arm #6 at base of #3

1-10-85 new peg on Arm #2

1/22/90 new arm unpegged (#7) to SE

Date Elevd.

Cactus O.P. #18

Location

BAKER MINE RD PLOT

	73	69	65	52	16	~~0~~		ARM #									
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/17/70	7¼	6¾	7⅛	6⅛	4¼	*11												
12/19/70	10½	9¼	9¼	9½	10¼	*16												
12-6-71	11¼	10½	10¼	10⅛	13½	12½												
1-1-73	13¼	12½	12	11¾	17½	16½												
2-12-74	15¾	15¾	13¾	14¾	24⅛	24¼	4½											
2-4-75	17⅛	17¾	16⅛	17¾	28¼	~~29½~~	9	1½										
12-24-75	17¾	18¼	17½	18½	31½	32⅛												
1-13-77	19¾	20½	18	20¾	35½	39½	16⅓ 7½											
1-27-77	22⅛	22¼	20¼	25¾	39¼	44½	12½		3½									
1-24-79	24¾	25¾	23	27½	44	49	14¾	17										
1/21/80	27	28½	25½	30¾	48¼	54¼	18½	9¾ 25¼										
2/3/81	29	30¼	27	33	51	59¼	21¾	16¼										
12-16-81	30¾	32¼	28½	35¼	54½	62¾	25⅛	22¾	*11									
12-14-82	32¾	34½	32¼	38½	58¼	66½	28½	30½	*3½									
2-9-84	36	36¾	35¾	42	62½	72	32½	39¼	5¾									

Specific Location
(if necessary)

* peg installed 8¾ from top

* 12-14-82 TAG & PEG - 3¾ From PEG

Date 3/15/70

INITIAL DESCRIPTION

ctus O.P. # 18

Location
BAKER MINE RD PLOT

Number of arms 6

Height of tallest arm 73"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	73	69	65	52	16	~~9~~										

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/70	Annual	3 1/4	2 1/2	2 1/4	3 1/2	6 5/8	5 5/8										
	Total	3 1/4	2 1/2	2 1/4	3 1/2	6 5/8	5 5/8										
12/71	Annual	3/4	1 1/4	1	1/2	3 1/4	3 3/4										
	Total	4	3 3/4	3 1/4	4	9 1/4	8 3/4										
1/73	Annual	2	2	1 3/4	1 3/4	4	4										
	Total	6	5 3/4	5	5 3/4	13 1/4	12 3/4										
2/74	Annual	2 1/2	3 1/4	1 3/4	3	6 1/2	7 3/4										
	Total	8 1/2	9	6 3/4	8 3/4	19 3/4	20 1/2										
2/75	Annual	1 1/4	2	2 1/4	2 1/2	4 1/4	5 1/4										
	Total	9 3/4	11	9	11 1/4	24	25 3/4										
12/75	Annual	3/4	1/2	1 1/2	1 1/4	3 1/4	2 1/2										
	Total	10 1/2	11 1/2	10 1/2	12 1/2	27 1/4	28 1/4										
1/77	Annual	2	2 1/4	1 1/2	2 1/4	4	7 1/2	7 1/2									
	Total	12 1/2	13 3/4	12	14 3/4	31 1/4	35 3/4	7 1/2									
1/78	Annual	2 1/4	1 3/4	2 1/4	5	3 3/4	5	5									
	Total	14 3/4	15 1/2	14 1/4	19 3/4	35	40 3/4	12 1/2									
79	Annual	2 3/4	3 1/2	2 3/4	1 3/4	4 3/4	4 1/2	2 1/4	17								
	Total	17 1/2	19	17	21 1/2	34 3/4	45 1/4	14 3/4	17								
11/21/80	Annual	2 1/4	2 3/4	2 1/2	3 1/4	4 1/4	5 1/4	3 3/4	8 1/4								
	Total	19 3/4	21 3/4	19 1/2	24 3/4	44	50 1/2	18 1/2	25 1/4								
2/2/81	Annual	2	1 3/4	1 1/2	2 1/4	2 3/4	5	3 1/4	7 1/4								
	Total	21 3/4	23 1/2	21	27	46 3/4	55 1/2	21 3/4	32 1/2								
12/16/81	Annual	1 3/4	2	2 1/2	2 1/4	3 1/2	3 1/2	3 1/4	6 1/2								
	Total	23 1/2	25 1/2	23 1/2	29 1/4	50 1/4	59	25	39								

Growth

INITIAL DESCRIPTION

Date: 3-15-70

Cactus: OP#18

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

65 3/4 62 1/4 58 46 54 3/4 71 1/2 43 1/4 15 1/2 (11) ?

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	2	2 1/4	2 3/4	3 1/4	3 3/4	3 3/4	3 1/2	7 3/4	?							
	Total	25 1/2	27 3/4	26 1/4	32 1/2	54	62 3/4	28 1/2	46 3/4	3 1/2							
7/9/84	Annual	3 1/4	2 1/4	3 1/2	3 1/2	4 1/4	5 1/2	4	8 3/4	2 1/4							
	Total	28 3/4	30	29 3/4	36	58 1/4	68 1/4	32 1/2	55 1/2	5 3/4							
1/9/85	Annual	5 1/2	9 1/4	7 1/4	8 1/4	7 1/4	5 3/4	3 3/4	(10)	4							
	Total	34 1/4	39 1/4	37	44 1/4	65 1/2	74 9 3/4	36 1/4	45 1/2	9 3/4							
5/20/86	Annual	3 3/4	1	1 1/2	2 1/2	2 1/4	1 1/2	2 1/4	3 1/4	1 3/5							
	Total	38	40 1/4	38 1/2	46 3/4	67 3/4 24 3/4	11 1/4	38 1/2	48 3/4	11 1/2							
1/2/87	Annual																
	Total	40	42 1/8	40 1/2	48 1/4	26 1/2	13 1/2	40 3/4 6 1/2	54 1/4	14 1/4							
1/27/88	Annual																
	Total	40 7/8	43 1/4	42	50 1/2	27 3/8	15	7 1/8	56 1/2	16 1/2							
1/18/89	Annual																
	Total	41 5/8	44	44	53	30 1/2	17	10 1/2	61 1/4	21							
1/22/90	Annual																
	Total	42 1/2	44 3/4	44 1/2	53 3/4	32 1/4	19	11 3/8	61 1/2	21 3/4							
1/16/91	Annual																
	Total	43 1/2	46 1/4	46 1/2	55 1/4	34	21	13 1/2	64 1/2	25 1/2							
1-23-92	Annual																
	Total	44 1/2	47 1/2	47 3/4	57 3/4	35 3/4	23 1/4	15 1/4	67	28 1/2							
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS O. P. #18 FIELD OBSERVATION SHEET # 1

Date 3/17/70

HEALTHY

1-1-73 healthy

2-12-74 #2 has a bud at its base 4½" long

2-4-75 New bud at base of #3 is 1½"

Bud at base of #2 is 9" Now 16½ + Arm #7

1-13-77 BUD AT BASE OF #3 - FLOWERED TOP ~~EATEN~~

1-27-78 Bud at base of #3 with new bud - 13½" from base of orig. bud.

Small bud at base of #7, horizontal, is 3½".

Plant greatly turgid. Arms 4 & 5 splitting.

12-16-81 * #7 ARM BUD #9 11" NOT PEGGED

1-9-85 arm #8. 45½" is accurate this year.

arm #6. new peg placed; peg to tip = 9¾". Old peg removed.

This plant shows many verticle scars between the pleits (as if by much shrink/swell)

1-10-86 NEW PEG #5

Data Sheet

Cactus O.P. #19

Location
BAKER MINE RD PLOT

6

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/17/70	6																	
12/19/70	6 1/2																	
12-6-71	7 1/4																	
1-1-73	7 3/4																	
2-12-74	10 1/4																	
2-4-75	11 1/4																	
12-24-75	12 1/4																	
1-13-77	14 1/2 3/4																	
1-27-78	16 1/2	3 1/4																
	16 1/2																	
12-4-79	6 3/4	6 1/2																
1/21/80	8 1/4	7 1/2																
2/3/81	9 1/4	8 1/2																
12-16-81	9 1/2	12 1/2 / 5 1/2																
12/4-82	10 1/2	9																
2-9-84	19 1/4	10 1/2	7 1/2															

Specific Location
(if necessary)

This plant is out of sequence. It is 14' toward summit of hill from plant # 16

Date 3/17/70

INITIAL DESCRIPTION

Status OP #19

Location
BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 6"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	6															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual	1/2															
	Total	1/2															
	Annual	3/4															
	Total	1 1/4															
	Annual	1/2															
	Total	1 3/4															
	Annual	2 1/2															
	Total	4 1/4															
	Annual	1															
	Total	5 1/4															
	Annual	1															
	Total	6 1/4															
	Annual	2 1/2															
	Total	8 3/4															
	Annual	2															
	Total	10 3/4															
1-24 79	Annual	0	6 1/2														
	Total	10 3/4	6 1/2														
	Annual	1 1/2	[illegible]1														
	Total	12 1/4	7 1/2														
2/3/81	Annual	1	1														
	Total	13 1/4	8 1/2														
12/16/81	Annual	1/4	3 1/2														
	Total	13 1/2	12														

Growth

INITIAL DESCRIPTION

Date: 3-17-70 P.2

Cactus: OP #19 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

9½ 5½ 6¾

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1	4														
	Total	14½	16														
2/9/84	Annual	8¾	1½														
	Total	23¼	17½														
2/9/85	Annual	?	1														
	Total	21¼ / 11¾	18½ / 13	12 / 5¼													
1/10/86	Annual	½	1½	1¾													
	Total	12¼	14½	7													
1/8/87	Annual																
	Total	12½	16¼	9¼													
1/27/88	Annual																
	Total	12¾	16½	10½													
1/18/89	Annual																
	Total	14⅜	20¼	13½													
11/22/90	Annual																
	Total	14⅝	19½	14¾													
11/16/91	Annual																
	Total	15½	20½	16¼													
1-23-92	Annual																
	Total	16	21¼	17¼													
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS O.P #19 FIELD OBSERVATION SHEET # 1

Date 3/17/70

HEALTHY

12-19-70 Not healthy, yellow

12-6-71 Looking somewhat better

12-24-75 Looks O.K.

1-13-77 HEAVILY GROWN AT BASE

1-27-78 new bud at base 3/4"

-3-81 branch (arm) #1 badly eaten near base.

1/9/84 bud ~~on arm #~~ from base of plt. (7½").
arm #1 has old chewing damage near base.

1/9/85 arm #1 = 21¼ from ground. 11 3/4" from peg. Arm damaged (old damage) from 2"-8" above ground.
arm #2 = 18½ from " . 18½
new bud pegged (arm #3) - 12" from ground to tip. 5¼" from peg to tip.

Data Sheet

Cactus OP#20 Location

	53	42	35	30	26	21	5	ARM #									
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3-17-70	6 1/4	5 1/2	5 3/4	5 1/4	9 1/4	6 1/4	*5											
12-19-70	7 3/4	7 1/4	7 1/4	6 1/4	10 1/2	10	*5	1										
12-6-71	8	7 1/2	7 1/2	6 1/2	11	11 3/4	•3	5 1/2										
1-1-73	8 3/4	8	7 1/2	6 3/4	11 1/2	13 1/4	•5 1/4	7 1/2										
2-12-74	9 3/4	9	8 1/4	7 3/4	12 1/2	16 1/4	•10 1/2	13 1/2	4 1/2									
2-4-75	10 1/2	9 3/4	9	8	12 3/4	17 1/4	2	15 1/2										
12-24-75	10 3/4	10 1/4	9 1/4	8	13	18 1/2	9 1/4	*16 1/4	9									
1-13-77	11 1/2	10 3/4	9 3/4	8 1/2	13 1/4	20	11 1/4	8 11 1/4	11									
1-27-78	12	11 1/2	10 3/4	9 1/2	13 3/4	20 3/4	13 1/2	14 1/2	16 1/2									
1-24-79	13 1/4	12 1/4	12	9 3/4	15	23 3/4	16 1/4	18 1/2										
1/21/80	14	12 3/4	12 1/2	10 1/4	15 1/2	26	19	21	22/11									
2/3/81	14 1/2	13 1/2	13 1/4	10 3/4	16	27 1/4	21 1/2	23 1/2	14									
12-16-81	15 1/4	13 3/4	13 1/2	11 1/4	16 1/2	29 1/4	23 1/2	25 3/4	16 1/4									
12-14-82	16	15	15 1/4	12	17 1/2	30	25	29 1/4	19 3/4									
2-9-84	18 1/4	15 3/4	16 1/4	13	18 3/4	32 3/4	28 1/4	32 3/4	23 1/2									

Specific Location (if necessary)

* Peg at 8" on #8

~~#9 Peg at 8"~~ • see notes

Date 3-17-70

INITIAL DESCRIPTION

Cactus OP#20

Location

BAKER MINE RD PLOT

Number of arms 7

Height of tallest arm 53

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	53	42	35	30	26	21	5									

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 1/2	1 3/4	1 1/2	1	1 1/4	3 3/4	0									
	Total	1 1/2	1 3/4	1 1/2	1	1 1/4	3 3/4	0									
12/71	Annual	1/4	1/4	1/4	1/4	1/2	1 3/4	3									
	Total	1 3/4	2	1 3/4	1 1/4	1 3/4	5 1/2	3									
1/73	Annual	3/4	1/2	0	1/4	1/2	1 1/2	2 1/4									
	Total	2 1/2	2 1/2	1 3/4	1 1/2	2 1/4	7	5 1/4									
2/74	Annual	1	1	3/4	1	1	3	5 1/4	6								
	Total	3 1/2	3 1/2	2 1/2	2 1/2	3 1/4	10	10 1/2	6								
2/75	Annual	3/4	3/4	3/4	1/4	1/4	1	1 1/2	2								
	Total	4 1/4	4 1/4	3 1/4	2 3/4	3 1/2	11	12	8								
12/75	Annual	1/4	1/2	1/4	0	1/4	1 1/4	1 3/4	3/4								
	Total	4 1/2	4 3/4	3 1/2	2 3/4	3 3/4	12 1/4	13 3/4	8 3/4								
1/77	Annual	3/4	1/2	1/2	1/2	1/4	1 1/2	2	3 1/4								
	Total	5 1/4	5 1/4	4	3 1/4	4	13 3/4	15 3/4	12								
1/78	Annual	1/2	3/4	1	1	1/2	3/4	2 1/4	3 1/4								
	Total	5 3/4	6	5	4 1/4	4 1/2	14 1/2	18	15 1/4								
79	Annual	1 1/4	3/4	1 1/4	1/4	1 1/4	3	2 3/4	4								
	Total	7	6 3/4	6 1/4	4 1/2	5 3/4	17 1/2	20 3/4	19 1/4								
1/80	Annual	3/4	1/2	1/2	1/2	1/2	2 1/4	3 3/4	2 1/2	22							
	Total	7 3/4	7 1/4	6 3/4	5	6 1/4	19 3/4	23 1/2	21 3/4	22							
2/3/81	Annual	1/2	3/4	3/4	1/2	1/2	1 1/4	2 1/2	2 1/2	3							
	Total	8 1/4	8	7 1/2	5 1/2	6 3/4	21	26	24 1/4	25							
12/16/81	Annual	3/4	1/4	1/4	1/2	1/2	2	2	2 1/4	2 1/4							
	Total	9	8 1/4	7 3/4	6	7 1/4	23	28	26 1/2	27 1/4							

Growth

INITIAL DESCRIPTION

P.2

Date:

Cactus: OP#20 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

~~6½~~ ~~12½~~

46¾ 36½ 29¼ 24¾ 16¾ 14¾ ~~4½~~ ~~8¼~~ 11¼

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1¾	1¼	2¾	¾	1	¾	1½	3½	3½							
	Total	10¾	9½	10½	6¾	8¼	23¾	29½	30	30¾							
2/9/84	Annual	2¼	¾	1	1	1¼	2¾	3¼	3½	3¾							
	Total	13	10¼	11½	6¾	9½	26½	32¾	33½	34½							
1/9/85	Annual	~~5¼~~	6	~~5¼~~	~~5¾~~	~~9½~~	~~7½~~	~~2¾~~	~~½~~	~~1¾~~							
	Total	18¼	16¼	16¾	12½	19	34	30	34	36¼ / 25							
1/10/86	Annual	¼	0	½	¾	¼	¾	0	¾	1½							
	Total	18½	16¼	17¼	13¼	19¼	34¾	30	34¾	26½							
1/7/87	Annual																
	Total	18¾	16½	17½	13¼	19	35½	30½	35¼	27½							
1/27/88	Annual																
	Total	18⅝	16¾	17½	13⅝	19¼	36	31¼	35½	28⅛							
1/18/89	Annual																
	Total	20⅛	17¾	18⅝	14½	20⅛	37½	33	38	29½							
1/22/90	Annual								arm #3		1¼ bud at base, arm #4 shrunken at base						
	Total	19⅝	17½	18⅛	14⅛	20¼	37	32½	37¼	29¼							
1/16/91	Annual																
	Total	20	17¼	18¾	14¼	20	37½	32½	37¾	29¾							
1-23-92	Annual																
	Total	21¼	17¾	19	14¾	20¼	39	33	39¼	30¾	11½						
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

CACTUS OP #20 FIELD OBSERVATION SHEET #1

Date 3/17/70

1. ARM #7 HAS A DAMAGED GROWING TIP
2. PLANT IS GENERALLY THIN

12-19-70 base of arm #3 one inch bud

12-6-71

- 3" bud from damaged end of #7

Bud at base of #3 is now 5½"

1-1-73 Bud at base of #3 - 7½ inches ← (#8)
Healthy

2-12-74 4½" bud at base of #4

12-24-75 9" " " " " "

Whole plant yellowish - looks bad

1-13-76 11" Bud at Base of #4

1-27-78 bud at base of #4 is 16½"
plant generally yellowish.

1-24-79 Still yellow

2-3-81 STILL Slightly yellow

1-9-85 arm #7; 30" is good measurement. Plant is chlorotic.
arm #9; ground to tip 36¼, 25" from peg to tip

1-22-90 arm #3 - 1¼ bud at base, arm #4 shrunken at base

Data Sheet

Cactus OP#21

Location
BAKER MINE RD PLOT

	40	39	38	16														
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3-17-70	6½	6¾	6 ¼	5¾														
12-19-70	8⅝	8¼	7½	10½														
12-6-71	8½	8⅝	7¾	12½														
1-1-73	9½	10¼	8¾	17⅝														
2-12-74	12½	13¼	11¼	23¼	10½													
2-4-75	14¼	14½	12½	25¼	16½													
12-24-75	15⅝	15⅝	14⅝	26¾	~~21½~~													
1-13-77	17	17¼	16½	30½	17½													
1-24-78	18¾	18¾	19½	34¾	21¾													
1-24-79	23	22¾	23¾	39 8½	30													
1/21/80	26¾	26¼	28½	13½	36¼													
2-3-81	29¾	29	32	17½	41¼													
12-16-81	31½	30½	34¼	21¼	45½													
12-14-82	33½	33	38¼	25¼	50½													
2-9-84	38	36	43½	31½	56													

Specific location
(if necessary)

Date 3-17-70

INITIAL DESCRIPTION

Cactus OP # 21

Location
BAKER MINE RD PLOT

Number of arms 4

Height of tallest arm 40

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	40	39	38	16												

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 1/2	1 1/2	1 1/4	4 3/4												
	Total	1 1/2	1 1/2	1 1/4	4 3/4												
12/71	Annual	1/2	1/2	1/4	2												
	Total	2	2	1 1/2	6 3/4												
1/73	Annual	1	1 1/2	1	4 1/2												
	Total	3	3 1/2	2 1/2	11 1/4												
2/74	Annual	3	3	2 1/2	6 1/4	10 1/2											
	Total	6	6 1/2	5	17 1/2	10 1/2											
2/75	Annual	1 3/4	1 1/4	1 1/4	2	6											
	Total	7 3/4	7 3/4	6 1/4	19 1/2	16 1/2											
12/75	Annual	3/4	1/2	1 1/2	1 1/2	4 3/4											
	Total	8 1/2	8 1/4	7 3/4	21	21 1/4											
1/77	Annual	2	2 1/4	2 1/2	3 3/4	8											
	Total	10 1/2	10 1/2	10 1/4	24 3/4	29 1/4											
1/78	Annual	1 3/4	1 1/2	3	4 1/4	4 1/4											
	Total	12 1/4	12	13 1/4	29	33 1/2											
79	Annual	4 1/4	4	4 1/4	4 1/4	8 1/4											
	Total	16 1/2	16	17 1/2	33 1/4	41 3/4											
1/71/80	Annual	3 3/4	3 1/2	4 3/4	5	6 1/4											
	Total	20 1/4	19 1/2	22 1/4	38 1/4	48											
2/3/81	Annual	3	2 3/4	3 1/2	4	5											
	Total	23 1/4	22 1/4	25 3/4	42 1/4	53											
12/16/81	Annual	1 3/4	1 1/2	2 1/4	3 3/4	4 1/4											
	Total	25	23 3/4	28	46	57 1/4											

Growth

INITIAL DESCRIPTION

P.2

Date:

Cactus: OP # 21 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

33½ 32¼ 31¾ 40¾ 11¾

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	2	2½	4	4	5											
	Total	27	26¼	32	50	62¼				GROWTH							
2/9/84	Annual	4½	3	5¼	6¼	5½											
	Total	31½	29¼	37¼	56¼	67¾											
1/9/85	Annual	~~8¾~~	~~8½~~	~~10½~~	?	1¼											
	Total	40¼	37¾	47¾	see note 56¼	69 (T) 58½					RAW DATA						
1/10/86	Annual	1½	½	2	2½	1½											
	Total	41¾	38¼	49¾	38¾	60											
1/7/87	Annual																
	Total	42¾	38¼	52¼	41¼	60½											
1/27/88	Annual																
	Total	42¾	38¼	53⅛	42	61¼											
1/18/89	Annual																
	Total	43¾	38¾	54½	43½	62											
1/22/90	Annual						yellow	spined	fruit								
	Total	44	38½	55	44¼	63											
1/16/91	Annual																
	Total	44¼	39	56¼	45½	64											
1-23-92	Annual																
	Total	45¾	40¼	57¾	47	67½											
	Annual																
	Total																
	Annual																
	Total																

CACTUS O.P #21 FIELD OBSERVATION SHEET # 1

Date 3/17/70

1. ARM #3 IS BEING RUBBED BY A TREE LIMB

2. ARM #1 HAS A CONSTRICTION ABOUT 1' ABOVE THE GROUND

12-19-70 Arm #3 is being rubbed by a tree Limb

12-6-71 Tree limb dead but still rubbing #3

1-1-73 - " " " " "-removed by Jay limb

2-12-74 Bud at base of #1 is 10½ (=#5)

1-9-85 Arm #5 = 69" from ground to tip. Peg to tip = 58½". Don't understand discrepency from last yrs. measurements,

Arm #4 - last yrs. measurement from the old peg (removed this year)

- this years " " newer peg @ 36¼" from peg to tip. Distance between old & new peg = 31".

(B.S! - CWC 1-92)

1/22/90 - Yellow spined fruit

Data Sheet

Cactus O. P. #22

Location
BAKER MINE RD PLOT

Date	Ht.	Arm # 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/17/70	5¾																		
12-19-70	6⅛																		
12-6-71	6⅛																		
1-1-73	6¼																		
2-12-74	7⅛																		
2-4-75	7⅛																		
12-24-75	7¼																		
1-13-77	7½																		
1-27-78	7¾																		
1-24-79	8¼																		
1/21/80	8																		
2-3-81	8½																		
12-16-81	9½																		
12-14-82	9½																		
2-9-84	8½																		

Specific Location
(if necessary)

BELOW THE ROAD BETWEEN CACTUS # 21 & #23

*1" BUD

PLANT & BUD LOOK YELLOW

Date 3/17/70

INITIAL DESCRIPTION

Cactus O, P# 22

Location

BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 6"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	6															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1/4															
	Total	1/4															
12/71	Annual	0															
	Total	1/4															
1/73	Annual	1/4															
	Total	1/2															
2/74	Annual	3/4															
	Total	1 1/4															
2/75	Annual	0															
	Total	1 1/4															
12/75	Annual	3/4															
	Total	1 1/2															
1/77	Annual	1/4															
	Total	1 3/4															
1/78	Annual	1/4															
	Total	2															
79	Annual	1/2															
	Total	2 1/2															
1/80	Annual	0															
	Total	2 1/2															
2-3-81	Annual	1/2															
	Total	3															
12/16/81	Annual	1															
	Total	4															

Growth

INITIAL DESCRIPTION

Date:

Cactus: OP #22 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/17/82	Annual																
	Total	8 2															
1/10/84	Annual																
	Total																
1/9/85	Annual																
	Total	8 1/4" No prg yet															
1/10/86	Annual	1/1															
	Total	8 1/2 No PEG	4 No PEG														
1/7/87	Annual	8	6														
	Total	8	6														
1/27/88	Annual																
	Total	8 1/2	6 3/4	NO PEG													
1/17/89	Annual																
	Total	9	9														
1/22/90	Annual																
	Total	7 1/4	9														
1/16/91	Annual																
	Total	7 1/2	11			new bud / old arm											
1-23-92	Annual																
	Total	7 1/2	3 1/2 / 9														
	Annual																
	Total																
	Annual																
	Total																

CACTUS O.P #22 FIELD OBSERVATION SHEET # 1

Date 3/17/70

1. CACTUS IS THIN + YELLOW ISH

12-19-70 – yellow thin – poor condition

12-6-71 " " " "

1-1-73 Tough life!

2-17-74 very yellow

2-4-75 No improvement

12-21-75 Looks bad

1-27-78 lower side very yellow

2/9/84 bud is 3½". Plt. yellow but bud looks healthy. Tiny bud on down hill side of plt. 1/8".

1-9-85 — Original bud – 8¼"; bud which is east southeast side is Ca. 4". Tag rearranged, but no peg as yet

Data Sheet

Cactus OP #23

Location
BAKER MINE RD PLOT

46 43 33 24

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3-17-70	7¾	6¼	5¾	7¾	3													
12-19-70	11¼	11¼	9⅝	11¼	*4													
12-6-71	12¼	13⅝	9½	12½	*4½													
1-1-73	14	15½	11¼	14	15½													
2-12-74	16½	18¾	14½	17½	17½	5												
2-4-75	17½	21⅝	16¼	19½	24¾	12¾												
12-24-75	17½	22⅝	17⅝	21¼	27½	16												
1-13-77	18½	24	18½	24	33¾	22¾ 8¾												
1-27-78	20½	26½	20½	27	37½	16¾												
1-24-79	22¼	29½	24	31	38½	23¼	6½											
1/21/80	23¾	32¼	26	34¾	38½	27½	18½ 6½											
2-3-81	25	34¼	28	37	38¼	30¾	13¼											
12-16-81	25¼	35¼	28¾	39¼	38¼	33½	21¼											
12-14-82	26½	36½	31	41½	40¼	37½	28½											
2-9-84	29	40	33½	46¼	45½	42¾	35											

Specific Location
(if necessary)

Date 3-17-70

INITIAL DESCRIPTION

Cactus OP#23

Location
BAKER MINE RD PLOT

Number of arms 4

Height of tallest arm 46

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	46	43	33	24	bud											

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	3 1/2	5 3/4	3 1/4	3 1/2	4 3/4											
	Total	3 1/2	5 3/4	3 1/4	3 1/2	4 3/4											
12/71	Annual	1	1 3/4	1/2	1 1/4	5 1/2											
	Total	4 1/2	6 3/4	3 3/4	4 3/4	9 1/2											
1/73	Annual	1 3/4	2 1/2	1 3/4	1 1/2	6											
	Total	6 1/4	9 1/4	5 1/2	6 1/4	15 1/2											
2/74	Annual	2 1/2	3 1/4	3 1/4	3 1/2	2											
	Total	8 3/4	12 1/2	8 3/4	9 3/4	17 1/2											
2/75	Annual	1	2 1/4	1 3/4	2	7 1/4											
	Total	9 3/4	14 3/4	10 1/2	11 3/4	24 3/4											
12/75	Annual	0	1	3/4	1 3/4	2 1/4											
	Total	9 3/4	15 3/4	11 1/4	13 1/2	27 1/2											
1/77	Annual	1	2	1 1/2	2 3/4	6 1/4	6 3/4										
	Total	10 3/4	17 3/4	12 3/4	16 1/4	29 3/4	6 3/4										
1/78	Annual	2	2 1/2	2	3	3 3/4	8										
	Total	12 3/4	20 1/4	14 3/4	19 1/4	27 1/2	18 3/4										
79	Annual	1 3/4	3	3 1/2	4	1	6 1/2	6 1/2									
	Total	14 1/2	23 1/4	18 1/4	23 1/4	28 1/2	21 1/4	6 1/2									
1/80	Annual	1 1/2	2 3/4	2	3 3/4	0	4 1/4	12									
	Total	16	26	20 1/4	26 1/2	28 1/2	25 1/2	18 1/2									
2/3/81	Annual	1 1/4	2	2	2 1/4	0	3 1/4	6 3/4									
	Total	17 1/4	28	22 1/4	28 3/4	28 1/2	28 3/4	25 1/4									
12/16/81	Annual	1/4	1	3/4	2 1/4	—	2 3/4	8									
	Total	17 1/2	29	23	31	28 1/2	31 1/2	33 1/4									

Growth

INITIAL DESCRIPTION

Date:

Cactus: OP #23 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

(9)

38 1/4 36 3/4 27 1/4 16 1/4 ~~0~~ 14 12 3 3/4

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1 1/4	1 1/4	2 1/4	3 1/4	2	4	7 1/4									
	Total	18 3/4	30 1/4	25 1/4	34 1/4	30 1/2	35 1/2	40 1/2									
2/9/84	Annual	2 1/2	3 1/2	2 1/2	3 3/4	5 1/4	5 1/4	6 1/2			GROWTH						
	Total	21 1/4	33 3/4	27 3/4	38	35 3/4	40 3/4	47									
1/9/85	Annual	~~8 1/4~~	~~7 3/4~~	~~7 1/2~~	~~9 1/2~~	~~12 1/4~~	~~4 1/2~~	~~6 1/2~~									
	Total	29 1/2	41 1/2	~~35 1/4~~	47 1/2	48"	~~45 1/4~~	~~53 1/2~~ 39 3/4	2		RAW						
1/10/86	Annual	0	1/2	(3/4)	0	1 1/4	1/2	2 3/4			DATA						
	Total	29 3/4	42	34 1/2	47 1/2	49 1/4	45 3/4	42 1/2									
1/7/87	Annual																
	Total	~~29 3/4~~	1/2 3/4	35	48 1/4	52	47 3/4	47	9"								
1/27/88	Annual																
	Total	29 3/4	43 1/8	36 1/4	48 1/2	53 1/4	48 1/4	47 1/4	13 9/14								
1/10/89	Annual																
	Total	31	44 1/2	36 3/4	50 1/4	57 1/8	44 7/8	50 1/2	15 7/8								
1/24/90	Annual																
	Total	31 3/8	44 3/4	37 1/4	50 5/8	58 5/8	50 1/2	48 1/4	17 7/8								
1/16/91	Annual																
	Total	32 1/4	45 1/2	38 1/4	51	60 1/2	52 1/4	50 1/2	23 1/4								
1-23-92	Annual																
	Total	33	46 3/4	38 3/4	51 3/4	61	54	52 1/2	27								
	Annual																
	Total																
	Annual																
	Total																

CACTUS OP #23 FIELD OBSERVATION SHEET #1

Date 3/17/70

ARM #4 has a JOINT. THE NEW GROWTH ABOVE IS ABOUT 3 IN LONG

1-1-73 Arm #5 stacked at 7½"

2-74 Bud at base of #3 is 5"

2-75 Bud at base of #3 is 12 ¾"

2-75 " " " " " " 16"

1-13-77 " " " " " " 22¾ Now Arm #6

1-24-79 Arm #7 tagged

1-9-85 arm #7 measured from bottom to top and peg to top.

1-9-85 bud between arms 1 and 5 at base of plant—2" in growth.

1-9-85 bud too young to tag (approx. 3½") coming from base of arm #11.

1-7-87 Arm between 1 and 5 at base = 9".

Data Sheet

Location OP # 24

Location
BAKER MINE RD PLOT

17
ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3-17-70	5¼																	
12-19-70	7¼	1½ *																
12-6-71	7½	4½																
1-1-73	8½	7																
2-12-74	11⅝	9½																
2-4-75	13	12½																
12-24-75	14¼	15⅝																
1-[illegible]-77	16¾	17½ / 7½																
1-27-78	20½	11½																
1-24-79	23¾	15½																
1/21/80	26¼	19																
2-3-81	28½	23¾																
12-16-81	29½	24⅝																
12-14-82	31	27¼																
2-9-84	34¼	32¼																

Specific Location
(if necessary)

Date 3-17-70

INITIAL DESCRIPTION

Cactus OP#24

Location
BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 17

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	17	bud														

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	2%	1½														
	Total	2%	1½														
12/71	Annual	¼	3														
	Total	2¼	4½														
1/73	Annual	1	2½														
	Total	3¼	7														
2/74	Annual	2½	2½														
	Total	5¾	9½														
2/75	Annual	2	3														
	Total	7¾	12½														
12/75	Annual	1¼	2½														
	Total	9	15														
1/77	Annual	2½	2½														
	Total	11½	17½														
1/78	Annual	3¾	4														
	Total	15¼	21½														
79	Annual	3¼	4														
	Total	18½	25½														
1/80	Annual	2½	3½														
	Total	21	29														
2/31/81	Annual	2¼	2¾														
	Total	23¼	31¾														
12/16/81	Annual	1	2¼														
	Total	23¼	34														

Growth

INITIAL DESCRIPTION

Date:

P2

Cactus: OP #24

Location: 2m. above ROAD N.W. of paloverde 1M.

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

11 3/4 10

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1 1/2	3 1/4														
	Total	24 3/4	37 1/4														
2/9/84	Annual	3 1/4	5														
	Total	28	42 1/4														
1/9/85	Annual	~~4 1/2~~	~~1 1/2~~														
	Total	35 1/2	~~43 3/4~~ 34 1/2														
1/10/88	Annual	1/4	1														
	Total	35 3/4	35 1/2														
1/7/87	Annual																
	Total	36 1/2	38 1/8														
1/27/88	Annual																
	Total	37 1/4	40														
1/18/89	Annual																
	Total	40 3/8	43 1/2														
1/22/90	Annual																
	Total	42 1/4	45 1/4	7 1/2													
1/16/91	Annual																
	Total	44	47 1/2	17													
1-23-92	Annual																
	Total	46 1/2	49 1/2	13/13													
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

CACTUS OP #24 FIELD OBSERVATION SHEET #1

Date 3/17/70

HEALTHY

2-4-75 a Paloverde limb is rubbing #1 pretty hard & is just above #2

1-27-78 #1 bare of spines where Palo Verde has been rubbing

1-9-'85 on #2 measured from bottom to top and peg to top.

Data Sheet

Cactus OP#25

Location
BAKER MINE RD PLOT

25 12

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3-17-70	5¼	5%																
12-19-70	7%	10%																
12-6-71	7½	12¼																
1-1-73	7¾	13½																
2-12-74	10%	17½																
2-4-75	11%	21½																
12-24-75	11¼	22½																
1-13-77	12	26½	6½															
1-27-78	12¾	27¼	13															
1-24-79	14½	30½	19¼															
1/21/80	15¼	33⅜	24¼															
2-3-81	16⅔	34½	28½															
12-16-81	18¾	36½	32															
12-14-82	22½	40¾	37¼															
2-9-84	27¾	44½	41½															

Specific Location
(if necessary)

Date 3-17-70

INITIAL DESCRIPTION

Cactus OP #25

Location
BAKER MINE RD PLOT

Number of arms 2

Height of tallest arm 25

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	25	12														

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 3/4	5%														
	Total	1 3/4	5%														
12/71	Annual	1/2	2 1/4														
	Total	2 1/4	7 1/4														
1/73	Annual	1/4	1 1/4														
	Total	2 1/2	8 1/2														
2/74	Annual	2 1/4	4														
	Total	4 3/4	12 1/2														
2/75	Annual	1	4														
	Total	5 3/4	16 1/2														
12-/75	Annual	1/4	1														
	Total	6	17 1/2														
1/77	Annual	3/4	4	8													
	Total	6 3/4	21 1/2	8													
1/78	Annual	3/4	3/4	6 1/2													
	Total	7 1/2	22 1/4	14 1/2													
79	Annual	1 3/4	3 1/4	6 1/4													
	Total	9 1/4	25 1/2	20 3/4													
1/80	Annual	3/4	2 1/4	5													
	Total	10	27 3/4	25 3/4													
3/31/81	Annual	1 1/2	1 3/4	4 1/4													
	Total	11 1/4	29 1/2	30													
12/16/81	Annual	2 1/4	2	3 1/2													
	Total	13 1/2	31 1/2	33 1/2													

Growth

INITIAL DESCRIPTION

P.2

Date:

Cactus: OP #25 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

19¾ 7 (10) 0 14¼ 12¾ 9

Date	Arm # →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	3¾	4¼	5¼													
	Total	17¼	35¾	38¾													
2/9/84	Annual	5¼	3¾	4¼				GROWTH									
	Total	22½	39½	43													
1/9/85	Annual	5	4½	3													
	Total	27½	45	42¼	18½ / 4¼	17¼ / 4½	12 / 3		RAW								
1/10/86	Annual	¼	0	(-½)	4¾	5	2¼			DATA							
	Total	27¾	45	41¾	9	9½	5¼										
1/7/87	Annual																
	Total	27½	44¾	41¾	14	15	9½										
1/27/88	Annual																
	Total	27½	45⅜	42⅝	14½	17½	11										
1/18/89	Annual																
	Total	29⅛	47	43	18	22¼	15½										
1/22/90	Annual																
	Total	29¾	47¼	43½	18¾	23⅞	16¾										
1/16/91	Annual																
	Total	30½	49	43¼	21¾	28¾	22½										
1-23-92	Annual																
	Total	31	50	43½	23¾	33½	26										
	Annual																
	Total																
	Annual																
	Total																

24

CACTUS FIELD OBSERVATION SHEET #37

Date 2-3-81

Just uphill (right) from plant #24

in bur sage

8½

1-9-85 - Arm #3 double checked measurement, 42¼" is good.
Arm #6 ground to tip = 12". Peg to tip = 3"
Arm #4 " " = 18½. " " " = 4¼". } all new arms added this year.
Arm #5 " " = 17¼, " " " = 4½". }

CACTUS OP # 25 FIELD OBSERVATION SHEET #1

Date 3/17/70

HEALTHY

1-1-73 healthy; no buds

1-4-75 Bud at base of #1 is 3"

12-24-75 " " " " #1 " 6½"

1-13-77 " " " " #1 " 14½ New Arm 3

7/9/84 2 new arms beginning from base (ca. 14" & 16") need pegs.

1-7-87 ~~reading for last~~ year measurers difference = 25

Data Sheet

Station OP #26

Location: BAKER MINE RD PLOT

	75	71	70	68	64	58	34	23	16 ARM #								
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3-17-70	71½	6½	7¾	8½	10⅝	6¾	7¾	6¼	6⅝									
12-19-70	12¾	8¼	9¼	9½	11¾	9¾	12¾	10½	12⅝									
12-6-71	13½	9¼	9¾	10⅝	12½	10½	16⅝	13¾	16⅝									
1-1-73	13¾	9¾	10¼	10⅝	11¼	11½	18¼	15¾	21⅝									
2-12-74	16⅝	12¾	13½	12	14½	15½	22¾	20½	29½									
2-4-75	17⅝	14¾	14¾	13⅝	16¼	18½	25¼	25⅝	34½									
12-24-75	17¾	16¼	16¾	14¼	17¾	20⅝	27¾	27½	37¾									
1-13-77	19¼	18¼	18½	16½	18¾	22	32¾	31½	44½									
1-27-78	21½"	19½"	49¾"	18½"	19¾"	24½"	35¾"	36"	49¾"									
1-24-79	23½	22	22	21	21¾	27½	37	39¼	53¾									
1/21/80	26	23½	25	22½	23	29½	41	44¼	58									
2/3/81	27¼	25½	26½	24	25¼	32¼	43	48½	61¼	8½								
12-16-81	28¾	26¾	28⅝	24½	26½	32¾	44¼	52¾	62½	14½ / 4½	*10¼							
12-14-82	30½	29	29½	25½	27¾	35	46	56	66½	10¼	*5½							
2-9-84	33	29½	32	26¾	29	36½	48¼	62	69½	18½	11½	11						

Specific Location (if necessary)

BASE OF ARM # 7 NEW ARM 12/14/82
NO 11 NO READING 12/14/82
NO 12 OFF NO 6 TAGED PEG 5½ FROM TOP

(4)

Date 3-17-70

Cactus OP #26

INITIAL DESCRIPTION

Location
BAKER MINE RD PLOT

Number of arms 9

Height of tallest arm 75

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	75	71	70	68	64	58	34	23	16							

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 1/4	1 3/4	1 1/2	1	1 3/4	3	5	3 3/4	6							
	Total	1 1/4	1 3/4	1 1/2	1	1 3/4	3	5	3 3/4	6							
12/71	Annual	3/4	1	1/2	1/2	3/4	3/4	3 1/4	3 1/4	4							
	Total	2	2 3/4	2	1 1/2	2 1/2	3 3/4	8 1/4	7	10							
1/73	Annual	1/4	1/2	1/2	0	0	1	2 1/4	2	5							
	Total	2 1/4	3 1/4	2 1/2	1 1/2	2 1/2	4 3/4	10 1/2	9	15							
1/74	Annual	2 1/4	3	3 1/4	2	3 1/4	4	4 1/2	4 3/4	8 1/2							
	Total	4 1/2	3 1/4	5 3/4	3 1/2	5 3/4	8 3/4	15	13 3/4	23 1/2							
1/75	Annual	1	2	1 1/4	1	1 3/4	3	2 3/4	4 1/2	5							
	Total	5 1/2	5 1/4	7	4 1/2	7 1/2	11 3/4	17 3/4	18 1/4	28 1/2							
12/75	Annual	3/4	1/2	2	1 1/4	1 1/2	1 1/2	2 1/4	2 1/2	3 1/4							
	Total	6 1/4	6 3/4	9	5 3/4	9	13 1/4	20	20 3/4	31 3/4							
1/77	Annual	1 1/2	2	1 3/4	2 1/4	3/4	2	5	4	6 3/4							
	Total	7 3/4	8 3/4	10 3/4	8	9 3/4	15 1/4	25	24 3/4	38 1/2							
1/78	Annual	2 1/4	1 1/4		2	1 1/4	2 1/2	3	4 1/2	5 1/4							
	Total	10	10	3 1/2	10	11	17 3/4	28	29 1/4	43 3/4							
79	Annual	2	2 1/2		2 1/2	2	3	1 1/4	3 1/4	4							
	Total	12	12 1/2	14 1/4	12 1/2	13	20 3/4	25 1/4	32 1/2	47 3/4							
1/21 80	Annual	2 1/2	1 1/2	3	1 1/2	1 1/4	2	4	5	4 1/4							
	Total	14 1/2	14	17 1/4	14	14 1/4	22 3/4	33 3/4	37 1/2	52							
2/3/81	Annual	1 1/4	2	1 1/2	1 1/2	2 1/4	2 3/4	2	4 1/4	3 1/4							
	Total	15 3/4	16	18 3/4	15 1/2	16 1/2	25 1/2	35 1/4	41 3/4	55 1/4							
12/16/81	Annual	1 1/2	1 1/4	1 1/2	1/2	1 1/4	1/2	1 1/4	4 1/2	1 1/4	6						
	Total	17 1/4	17 1/4	20 1/4	16	17 3/4	26	36 1/2	46	56 1/2	6						

Growth

INITIAL DESCRIPTION

P.2

Date:

Cactus: OP #26

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

63½ 64½ 62¼ 59½ 54 51¼ 26¼ 16¾ 65¾ 10 4 11¾

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/19/82	Annual	1¾	2¼	1½	1	1¼	2¼	1¾	3¼	4	5¾	7					
	Total	19	19½	21¾	17	19	28¼	38¼	49¼	60½	11¾	6	11/2				
2/9/84	Annual	2½	½	2½	1¼	1¼	1½	2¼	6	3	8¼	6					
	Total	21½	20	24¼	18¼	20¼	29¾	40½	55¼	63½	20						
1/9/85	Annual	~~13~~	~~10½~~	~~5¾~~	9	10¼	7½	9¼	9¼	9½	5						
	Total	34¼	30½	33	27¼	30½	37¼	49¾	64½	73	25	20½/16½	14½/2¾				
2/10/86	Annual	1¼	½	2½	1¼	2	2	1½	3¼	1⅔	5	5¼	5¾				
	Total	35½	32	35½	28½	32½	39½	51¼	67¾	74/19	30	21¾	8½				
1/7/87	Annual																
	Total	37¾	32¾	37	29⅛	33½	40¾	52	71¼	21	34¼	27½	3¼				
1/27/88	Annual																
	Total	38¼	33¼	38¼	29⅞	34⅞	41⅜	52¼	73⅜	22⅜	38⅛	31⅝	14½				
1/18/89	Annual																
	Total	38½	33¼	37¾	31⅝	35	42¾	55¼	73¾	23¾	42⅜	35¾	18½				
11/22/90	Annual																
	Total	40¼	33½	40⅛	33⅞	35	43½	56½	75	25½	45⅜	37⅝	20⅛				
1/16/91	Annual																
	Total	40¼	34¼	39¾	34¼	36	44¼	58	76	26¼	48	39¾	20				
1-23-92	Annual																
	Total	41¾	35	40	37¼	36½	45¼	59	78¼	28¾	50¾	44¼	25¾				
	Annual																
	Total																
	Annual																
	Total																

GROWTH RAW DATA

CACTUS OP #26 FIELD OBSERVATION SHEET #1

Date 3/17/70

ARMS # 1 - 5 ARE BEING & HAVE BEEN RUBBED BY THE BRANCHES OF A TREE

1-1-73 No Buds; healthy

12-16-8 BUD 3' #11 NOT PEGGED OFF #7

12-16-81 BUD #12. OFF #6 NOT TAGGED OR PEGGED

12-16-81 #10 PEGGED

2/9/84 - new arm forming (11") at base of arm #7. Should be pegged.
- no #11. Probably what was originally described & tagged as #12 is really #11. Tag should be changed to read #11. New arm (11") described above will become #12 (needs peg & tag in Dec. 1984)

1/9/85 - base of arm #7 (NW) is a 14½" bud. This becomes arm #12 (tagged & pegged)
From ground to tip = 14½". From peg to tip =
- arm #11 = 16½" from peg to tip. Ground to tip = 20½

1/6/86 new peg arm #9

Data Sheet

Cactus: OP #27

Location: BAKER MINE RD PLOT

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/29/70	7 3/4																	
12-19-70	9 1/2																	
12-6-71	10 1/2																	
~~11-73~~	~~17 1/2~~		measured wrong plant #3															
2-12-74	12	3 1/2																
2-4-75	15	4 1/2																
12-24-75	15	6"																
1-13-77	15	8"																
1/27/78	17 3/4	11 3/4																
1-24-79	18 1/2 11	14 1/4 7 1/4																
1/21/80	14 1/2	11 1/2																
2-4-81	17	14 1/4																
12-16-81	18 1/4	16																
12-14-82	21	18 1/2																
2-9-84	27 1/2	25 1/4	7 1/2															

Specific Location (if necessary): ON RIDGE OF HILL EAST OF SUMMIT

Date 3/29/70

INITIAL DESCRIPTION

Cactus
O.P #27

Location
BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 8"

General comments:
BADDLY EATEN

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	*7 3/4															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 3/4															
	Total	1 3/4															
12/71	Annual	1															
	Total	2 3/4															
1/73	Annual	~~7~~	} measured wrong plant														
	Total	~~9 3/4~~															
2/74	Annual	1 1/2															
	Total	4 1/2															
2/75	Annual	3															
	Total	7 1/2															
12/75	Annual	0	6														
	Total	7 1/2	6														
1/77	Annual	0	2														
	Total	7 1/2	8														
1/78	Annual	2 3/4	3 3/4														
	Total	10 1/4	11 3/4														
79	Annual	3/4	2 1/2														
	Total	11	14 1/4														
1/80	Annual	3 1/2	4 1/4														
	Total	14 1/2	18 1/2														
2/3/81	Annual	2 1/2	2 3/4														
	Total	17	21 1/4														
12/16/81	Annual	1 1/4	1 3/4														
	Total	18 1/4	23														

Growth

INITIAL DESCRIPTION

Date:

P.2

Cactus: DP#27 Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

7½ 7 8¾ 7⅞ 8⅛

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	2¾	2½														
	Total	21	25½														
2/9/84	Annual	6½	6¾					GROWTH									
	Total	27½	32¼														
	Annual	~~2¾~~	~~7~~														
1/9/85	Total	30¼	29¼	12½ / 3¾	4	4			RAW								
	Annual	1¼	2½	¾						DATA							
1/10/86	Total	31½	31¾	4½	6½	6¾											
4/3/87	Annual																
	Total	33¾	33¾	6	13	11½											
1/27/88	Annual																
	Total	35	35	7	13 / 5½	11½ / 3⅛											
1/18/89	Annual																
	Total	39	39¾	11⅜	11⅞	9½											
1/22/90	Annual																
	Total	40	40¼	11¼	14½	11½											
1/16/91	Annual																
	Total	44½	44½	15	21½	17¾											
1-23-92	Annual																
	Total	49	48¾	20	27	22¼											
	Annual																
	Total																
	Annual																
	Total																

CACTUS OP #27 FIELD OBSERVATION SHEET #1

Date 3/29/70

ARM HAS ONE JOINT AT ABOUT 5". LOWER PART BADDLY EATEN IN 3 PLACES. UPPER PART HEALTHY

~~1-1-73 Bud is #1~~

1-24 Bud is 3½

2-75 Bud is 4½

1/27/78 # 2 not marked

1-24-79 Arms #1 + #2 pegged

2/9/84 - 7½" arm at base of arm #1

1/9/85 - 4" bud growing from base of arm #1 (NE). Not pegged!
- new arm pegged (west side of plant) = arm #3 (the one recorded as 7½" in 2/9/84).
from ground to tip = 12½" from new peg to tip = 3¾".

1/10/86 - 6½" bud from SE base of #2
- 6¾" bud from NE base of #1 starts 5" above ground level

1/2/87 - of arm #2 = 13" from outside of ~~arm~~ <new arm> } not pegged
#1 = 11½" from outside of arm

1/27/88 - the above new arms tagged + pegged

Data Sheet

Cactus: O. P. #28 28 10

Location: BAKER MINE RD PLOT

ADM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/29/70	7 1/4	6																
12-19-70	8 1/2	9 3/4																
12-6-71	9 3/4	11 1/4																
1-1-73	11 3/4	14 1/2																
2-12-74	13 1/4	18 1/4	4 1/4															
2-4-75	14 1/4	22 1/2	8 1/2															
12-24-75	14 1/4	22 1/2	9 3/4															
1-13-77	15	22 1/4	~~12 1/2~~ 10 1/2															
1/27/78	16	25 1/2	10 1/4															
1-24-79	18 1/4	28	14 1/4															
1/21/80	20	31 1/2	17 1/2															
2-3-81	21	35	20 1/4															
12-16-81	22 1/2	36 1/4	22 1/2															
12-14-82	24	40 1/2	25 1/2															
2-9-84	26 1/4	41 1/4	28 3/4															

Specific Location (if necessary)

Date 3/29/70

INITIAL DESCRIPTION

Cactus
OP #28

Location
BAKER MINE RD PLOT

Number of arms 2

Height of tallest arm 28"

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	28	10														

Growth Record

GROWTH

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 1/4	3 3/4														
	Total	1 1/4	3 3/4														
12/71	Annual	1 1/4	1 1/2														
	Total	2 1/2	5 1/4														
1/73	Annual	2	3 1/4														
	Total	4 1/2	8 1/2														
2/74	Annual	1 1/2	3 3/4														
	Total	6	12 1/4														
2/75	Annual	1	3 3/4														
	Total	7	16														
12/75	Annual	0	0														
	Total	7	16														
1/77	Annual	3/4	1/4	2 1/2													
	Total	7 3/4	16 1/4	2 1/2													
1/78	Annual	1	3 1/4	3 3/4													
	Total	8 3/4	19 1/2	6 1/4													
79	Annual	2 1/4	2 1/2	4													
	Total	11	22	10 1/4													
1/80	Annual	1 3/4	3 1/2	3 1/4													
	Total	12 3/4	25 1/2	13 1/2													
2/3/81	Annual	1	3 1/2	3 3/4													
	Total	13 3/4	29	17 1/4													
12/16/81	Annual	1 1/2	1 1/4	2 1/4													
	Total	15 1/4	30 1/4	19 1/2													

Date

INITIAL DESCRIPTION

p.2

Cactus OP #28

Location

Number of arms _____

Height of tallest arm _____

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

$20\frac{3}{4}$ 4 $5\frac{3}{4}$ Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	$1\frac{1}{2}$	$4\frac{1}{4}$	3													
	Total	$16\frac{3}{4}$	$34\frac{1}{2}$	$22\frac{1}{2}$													
2/9/84	Annual	$2\frac{1}{4}$	$\frac{3}{4}$	$3\frac{1}{4}$													
	Total	19	$35\frac{1}{4}$	$25\frac{3}{4}$													
1/9/85	Annual	~~$1\frac{1}{2}$~~	~~$1\frac{3}{4}$~~	~~$4\frac{3}{4}$~~													
	Total	$26\frac{1}{2}$	43	$30\frac{1}{2}$													
1/10/86	Annual	$\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{4}$													
	Total	27	$44\frac{1}{4}$	$31\frac{3}{4}$													
1/7/87	Annual																
	Total	$27\frac{1}{2}$	$45\frac{1}{2}$	$33\frac{3}{4}$													
1/27/88	Annual																
	Total	$28\frac{1}{4}$	47	$34\frac{1}{2}$													
1/16/89	Annual																
	Total	$28\frac{1}{2}$	$49\frac{3}{4}$	$36\frac{1}{2}$													
1/22/90	Annual																
	Total	$28\frac{3}{4}$	$51\frac{3}{4}$	$38\frac{5}{8}$	5												
1/16/91	Annual																
	Total	$29\frac{1}{4}$	$53\frac{1}{2}$	$40\frac{1}{4}$	16												
1-23-92	Annual																
	Total	$29\frac{3}{4}$	54	$42\frac{3}{4}$	$\frac{10}{13}$												
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS

FIELD OBSERVATION SHEET

1

O. P. # 28

Date 3/29/70

HEALTHY

1-1-73 healthy

2-74 Bud on base of #1 4 1/4"

2-75 " " " " #1 to 8 1/2"

12-75 " " " " " 9 3/4

7-13-77 " " " " " 12 1/4 New Arm # 3

1/27/78 # 3 is yellowish

1-22-80 - bud at base of #1

OP # 29

BAKER MINE IRD PLOT

		53	47	44	42	33	30	9										
	Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	3/29/70	8 3/4	6 1/2	6 3/4	7 1/2	6 1/2	6 1/2	9*											
71	12/19/70	10 5/8	7 1/2	8 1/2	9 3/4	9 3/4	6 1/2	*14 3/4											
72	12-6-71	10 3/4	7 3/4	9 5/8	10 1/4	13 1/4	6 1/2	10 1/4											
	~~X-1-73~~	~~11 5/8~~	~~8 1/2~~	~~10 1/4~~	~~15~~		~~15 5/8~~												
	~~1-1-73~~	~~11 1/4~~	~~10 1/4~~																
73	1-1-73	11 1/4	8 3/4	10 1/4	11 1/4	~~15 5/8~~	~~6 5/8~~	15 5/8											
74	2-12-74	14 1/4	12 1/4	14 5/8	13 3/4	9 3/4	21 1/2	*26 5/8											
75	2-4-75	15 5/8	12 3/4	15 5/8	15 1/4	11 1/2	26 5/8	31 1/4											
77	1-31-77	17 1/4	14 3/4	17 1/2	19 1/4	15 1/4	32 1/2	10 3/4 / 21 1/2											
78	1/27/78	18	15	18	21 1/4	18 1/2	34 3/4	25 1/4	4 3/4										
79	1-24-79	20 1/2	17	18	23 1/4	22	37 3/4	31 1/4	6 1/2										
80	1/21/80	21 1/4	19	18 1/4	24 1/2	24 1/2	41 1/2	34 3/4	12 1/4										
81	2-3-81	23 1/2	20 1/2	20 1/2	24 3/4	27 3/4	44	37	21 / ~~20 1/2~~	5									
82	2-16-82	25 1/2	23 1/2	22 1/2	25 3/4	30	44°	39 3/4	13 1/2	19° / 6 1/2									
83	12-14-82	27 1/2	~~24 3/4~~	26°	27 1/2	32 3/4	44°	42°	21 1/4	19 1/2									

Specific Location (if necessary)

* peg installed at 6 3/4 from top

* new peg at 5"

what is '76?

Date 3/29/70

INITIAL DESCRIPTION

Cactus OP #29

Location
BAKER MINE RD PLOT

Number of arms 7

Height of tallest arm 53

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	53	47	44	42	33	30	*9									

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 1/4	1 0/0	1 3/4	2 1/4	3 1/4	0	5 3/4									
	Total	1 1/4	1 0/0	1 3/4	2 1/4	3 1/4	0	5 3/4									
12/71	Annual	3/4	1/4	1/2	1/2	3 1/2	0	3 1/2									
	Total	2	1 1/4	2 1/4	2 3/4	6 1/4	0	9 1/4									
1/73	Annual	1/2	1	1 1/4	1	1 3/4	0	4 3/4									
	Total	2 1/2	2 1/4	3 1/2	3 3/4	8 1/2	0	14									
2/74	Annual	3	3 1/2	3 3/4	2 1/2	3 3/4	15	11									
	Total	5 1/2	5 3/4	7 1/4	6 1/4	12 1/4	15	25									
2/75	Annual	3/4	1/2	1	1 1/2	1 3/4	4 1/2	5 1/4									
	Total	6 1/4	6 1/4	8 1/4	7 3/4	14	19 1/2	30 1/4									
12/75	Annual	3/4	1/2	1	1 1/2	1 3/4	4 1/2	5 1/4									
	Total	7	6 3/4	9 1/4	9 1/4	15 3/4	24	35 1/2									
1/77	Annual	2 1/4	2	2 1/2	4	3 3/4	6 1/2	11 1/4									
	Total	9 1/4	8 3/4	11 3/4	13 1/4	19 1/2	30 1/2	46 3/4									
1/78	Annual	3/4	1/4	1/2	2	3 1/4	2 1/4	3 3/4									
	Total	10	9	12 1/4	15 1/4	22 3/4	32 3/4	50 1/2									
79	Annual	2 1/2	2	0	2	3 1/2	3	6	6 1/2								
	Total	12 1/2	11	12 1/4	17 1/4	26 1/4	35 3/4	56 1/2	6 1/2								
1/80	Annual	3/4	2	1/4	1 1/4	2 1/2	3 3/4	3 1/2	5 3/4								
	Total	13 1/4	13	12 1/2	18 1/2	28 3/4	34 1/2	60	12 1/4								
2/3/81	Annual	2 1/4	1 1/2	2 1/4	1/4	3 1/4	2 1/2	2 1/4	8 3/4								
	Total	15 1/2	14 1/2	14 3/4	18 3/4	32	42	62 1/4	21								
12/16/81	Annual	2	3	2	1	2 1/4	0	2 3/4	7	19							
	Total	17 1/2	17 1/2	14 3/4	19 3/4	34 1/4	42	65	20	19							

Gr

he same

no data for this year ('76)

Data Sheet
P. 2

Cactus: OP # 29

Location:

Arm #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
84 29-84	30 1/2	28 1/4	29 3/4	29 1/2	36 1/4	45	46 1/4	26 3/4	29 1/4									
85 1-9-85	31 3/4	29 1/4	31 3/4	30 1/4	38	47	48	31 1/2	35 1/4	6	6	7	4 3/4					
86 1-10-86	33 3/4	30 3/4	33 1/2	31	40	48 1/4	49 1/2	33	41 3/4	11 1/4	10 3/4	13	11 3/4					
See next page										19 1/2								
1-27-86										19 1/2								

Specific Location:
(if necessary)

Date

INITIAL DESCRIPTION

P.2

Cactus OP #29

Location

Number of arms _____

Height of tallest arm _____

General comments:

*90 - buds formed on arms recorded as part of the arm - but separate measurements for each.

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Growth Record

GROWTH RAW DATA

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	2	1 1/4	2 1/2	1 3/4	2 3/4	0	2 1/4	7 3/4	13							
	Total	19 1/2	18 3/4	17 1/4	21 1/2	37	42	67 1/4	35 3/4	32							
2/9/84	Annual	3	3 1/2	4 3/4	2	3 1/2	1	4 1/4	5 1/2	9 3/4							
	Total	22 1/2	22 1/2	22	23 1/2	40 1/2	43	71 1/2	41 1/4	41 3/4							
1/85	Annual	9 1/4	7	9 3/4	6 3/4	?	4	7	?	?							
1/22/85	Total	31 3/4	29 1/4	31 3/4	30 1/4	38	47	48	31 1/2	35 1/4	6	6	9	4 3/4			
1/86	Annual	2	1 1/2	1 3/4	3/4	2	1 1/4	1 1/2	1 1/2	6 1/2	5 1/4	4 3/4	6	7			
1/10/86	Total	33 3/4	30 3/4	33 1/2	31	40	48 1/4	49 1/2	33	41 3/4	11 1/4	10 3/4	13	11 3/4			
1/7/87	Annual																
	Total	35	33 1/2	35	32 1/4	42	49 3/4	51	35	43	16	16 1/2	18 1/2	18 1/4			
88 1/27/88	Annual																
	Total	37	35	35 1/4	33	42 3/8	50 1/2	51 3/8	35 1/8	45	19 1/2	21 1/4	20 3/8	25 1/8			
1/89 1/18/89	Annual																
	Total	38 1/4	37	37 1/4	34 3/4	44 3/4	52 3/8	54	37 3/4	48 1/2	24 1/2	26 1/2	22 1/2	31			
90 1/22/90	Annual																
	Total	38 1/2	36	37 1/8	34 3/8	45	44 1/4	54 7/8	37 1/4	50	27	27 3/8	20 1/4	36			
	Annual					N bud		S bud*				W bud		E bud*			
	Total					8 1/2		8 1/4				4 1/4		3 5/8			
91 1/16/91	Annual																
	Total	40	37 3/4	38 1/2	35 1/4	46 1/2	9 1/2 | 9 3/4 / 44 1/4	56	39 1/2	52 3/4	32	30 1/2	9 3/4 | 5 1/2 / 20 1/4	42			
1-23-92	Annual																
	Total	41	39	40	36 3/4	48	10 1/2 | 10	57 1/4	42	56	35 3/4	33 1/2	15 | 9 1/2	47 1/2		
	Annual																
	Total																

CACTUS OP #29 FIELD OBSERVATION SHEET #1

Date 9/29/70

1. ARM #1 HAS A JOINT
2. ARM #6 HAS A DAMAGED GROWING TIP. NO NEW BUD IS RECOGNIZABLE NOW.

#5 - Now 6" - what happened?

2-4-75 #7 - new peg installed at 10 1/4

1/27/78 - bud between arms 6 & 1 - 4 3/4" tall

2-3-81 Below arm #2 arm both 5"

12-14-82 PEG INSTALLED #10
JUNCTION 3 & 6 NEW ARM

2/9/84 - base of arm #6 has new small bud 7" in height. Another 4" arm also growing from center of plt. off arm 6.
- " " " #3 " " " 14½" in height
- " " " #7 " " " ca. 7" in height.
- a double bud has begun growth at the apex of arm #6

1/9/85 - arm #6 - has 2 buds growing from arm tip. Arm measured from N most tip.
" #4 - Deep fold in arm 7" from tip.

1/10/86 - Arm #6 - N bud = 4½"
S bud = 5"

1/2/87 - Arm #6 - from peg to N. Bud = 4 9/16"
S. Bud = 6½" from fork in branch to tip

#6 - N bud = 50½
S bud = 52 3/8 (from peg) from fork in branch = 7 3/8"

1/18/89 #12 has 2 buds on tip. Measured to top of largest bud

O.P. #30

BAKER MINE RD PLOT

	40	36	35	11	
Date	1	2	3	4	5
3/29/70	7¼	8½	8¼	6½	
12-19-70	10½	10¾	10¼	12¼	
12-6-71	12¼	11¾	12%	15%	
1-1-73	14½	14%	14½	20½	
2-12-74	17½	18¼	18¼	28½	
2-4-75	23%	21¾	21¼	33¾	
12-24-75	25¼	28½	22¾	36¾	
1-13/77	30	26½	27	43½	
4/27/78	34¾	29¾	30	48¼	
79	38¾	33	33¾	53	
1/21/80	42½	36¾	37	58½	
2/3/81	45½	39½	39	62½	5¼
12-16-81	48¾	42¼	40½	66°	10½ / 4¼
12-14-82	53½	44¾	43¾	69°	10
2-9-84	58	46¼	48½	74½	15¾

Date 3/29/70

INITIAL DESCRIPTION

Cactus
O.P. #30

Location
BAKER MINE RD PLOT

Number of arms 4

Height of tallest arm 40

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	40	36	35	11												

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	3 1/4	2 1/4	2 0/0	5 3/4												
	Total	3 1/4	2 1/4	2 0/0	5 3/4												
12/71	Annual	1 3/4	1	1 3/4	2 3/4												
	Total	5	3 1/4	3 3/4	8 1/2												
1/73	Annual	2 1/4	2 1/4	2 1/2	5 1/2												
	Total	7 1/4	5 1/2	6 1/4	14												
2/74	Annual	3	4 1/4	3 3/4	8												
	Total	10 1/4	9 3/4	10	22												
3/75	Annual	5 1/2	3 1/2	3	5 1/4												
	Total	15 3/4	13 1/4	13	27 1/4												
12/75	Annual	2 1/4	3/4	1/2	3												
	Total	28	14	14 1/2	30 1/4												
1/77	Annual	4 3/4	4	4 1/4	6 3/4												
	Total	32 3/4	18	18 3/4	37												
1/78	Annual	4 3/4	3 1/4	3	4 3/4												
	Total	37 1/2	21 1/4	21 3/4	41 3/4												
79	Annual	4	3 1/4	3 3/4	4 3/4												
	Total	41 1/2	24 1/2	25 1/2	46 1/2												
1/80	Annual	3 3/4	3 3/4	3 1/4	5 1/2												
	Total	45 1/4	28 1/4	28 3/4	52												
2/3/81	Annual	3	2 3/4	2	4												
	Total	48 1/4	31	30 3/4	56												
12/16/81	Annual	3 1/4	2 3/4	1 1/2	3 1/2	5 1/4											
	Total	51 1/2	33 3/4	32 1/4	59 1/2	5 1/4											

Growth

Date

INITIAL DESCRIPTION

P.2

Cactus OP #30

Location

Number of arms _____

Height of tallest arm _____

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Growth Record

32 3/4 27 1/2 26 3/4 70 1/4 6 1/4 5 7/8

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/4/82	Annual	4 3/4	2 1/2	3 1/4	3	5 3/4											
	Total	56 1/4	36 1/4	35 1/2	62 1/2	11											
2/9/84	Annual	4 1/2	1 1/2	4 3/4	5 1/2	5 3/4											
	Total	60 3/4	37 3/4	40 1/4	68	16 3/4											
1/9/85	Annual	~~11 1/2~~	~~10 3/4~~	9	~~7 3/4~~	~~3 1/4~~											
	Total	59 1/4	48 1/2	49 1/4	75 3/4	20											
1/10/86	Annual	1 3/4	1	1/4	1 3/4	2 3/4											
	Total	61	~~49 1/2~~	50 1/2	~~77 1/4~~	22 3/4	3 1/4										
1/7/87	Annual																
	Total	64 1/4	50 3/4	51/2	13 1/2	25 3/4	*6 3/4										
1/27/88	Annual																
	Total	66 5/8	51 3/8	53 1/8	14 1/4	29	14 3/4 / 8 1/2										
1/18/89	Annual																
	Total	67 1/4	55 3/8	54 1/2	15	33 1/2	13 1/2										
1/22/90	Annual																
	Total	69 1/2	53 7/8	59 5/8	15 1/2	33 3/8	16 3/8	3	4 3/8	(2 new buds under arm #4 W- 3 SW- 4 3/8) #7 #8							
1/16/91	Annual																
	Total	71 1/4	56	53 1/2	15 3/4	38 3/4	23 1/2	10 1/2	15 1/2								
1-23-92	Annual																
	Total	73 1/4	58 1/2	54	15 3/4	42 1/4	25 1/4	17 1/2	9 1/2 / 12								
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS O.P #30 FIELD OBSERVATION SHEET #1

Date 3/29/70

ARM #1 HAS JOINT NEAR BOTTOM

1-9-85 arm #1 - very careful in measurement. 60 3/4" may have been last yrs. mistake!

1-10-86 → Arm #2 - bud growing from base 3 1/4" tall N.W.

Arm #4 - new peg

1/7/87 New branch from arm #2 = 6 3/4" <Not pegged>

" " " " " = 14 3/8" (" ") ~~peg this in 1989!!~~

1/27/88 Pegged 1/27/88

Data Sheet

Cactus: O.P. #31

Location: BAKER MINE RD PLOT

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/29/70	* 5 3/4																	
12-19-70	6 3/4																	
12-6-71	7 1/4																	
1-1-73	7 1/2																	
2-12-74	9 1/4																	
2-9-75	9 1/4																	
12-24-75	11																	
1-13-77	12 1/2																	
1/27/78	14 3/4																	
1-24-79	16 1/4																	
1-21-80	17 1/2	2 1/4																
2-3-81	19 1/4	5																
12-16-81	20 3/4 / 5 1/2	9 1/2 / 3 3/4																
12-14-82	6 3/4	6 1/2																
2-9-84	8	10																

Specific Location (if necessary)

25 FEET NORTH OF PLANT (O.P.) # 30 BESIDE A SANGRE DE DRAGO

Date 3/29/70

INITIAL DESCRIPTION

Cactus
O.P #31

Location
BAKER MINE RD PLOT

Number of arms 1

Height of tallest arm 6

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	6															

Growth Record

GROWTH

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1/0															
	Total	1/0															
12/71	Annual	1/2															
	Total	1 1/2															
1/73	Annual	1/4															
	Total	1 3/4															
2/74	Annual	1 3/4															
	Total	3 1/2															
2/75	Annual	0															
	Total	3 1/2															
12/75	Annual	1 3/4															
	Total	5 1/4															
1/77	Annual	1 1/2															
	Total	6 3/4															
1/78	Annual	2 1/4															
	Total	9															
79	Annual	1 1/2															
	Total	10 1/2															
1/80	Annual	1 1/4	2 1/4														
	Total	11 3/4	2 1/4														
2/3/81	Annual	1 3/4	2 3/4														
	Total	13 1/2	5														
12/16/81	Annual	1 1/2	4 1/2														
	Total	15	9 1/2														

INITIAL DESCRIPTION

P. 2

Date:

Cactus: OP #31

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

15'/4 5 3/4

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	1 1/4	2 3/4														
	Total	16 1/4	12 1/4														
2/6/84	Annual	1 1/4	3 1/2														
	Total	17 1/2	15 3/4														
3/9/85	Annual	~~1 1/2~~	~~1~~ 4														
	Total	~~22~~ 8 1/2	~~15 1/2~~ 11 1/2														
2/10/86	Annual	2 1/2	2														
	Total	11	13 1/2														
1/7/87	Annual																
	Total	10	15 1/4														
1/27/88	Annual																
	Total	10 1/2	17 1/2														
1/89	Annual																
	Total	11 3/4	18 3/4	5													
1/22/90	Annual																
	Total	12 1/8	19 1/8	8 1/8													
1/16/91	Annual																
	Total	13 1/2	21 1/2	13													
1-23-92	Annual																
	Total	14 3/4	24 1/2	18 1/2													
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS OP #31 FIELD OBSERVATION SHEET #1

Date 3/29/70

YELLOW BUT OTHERWISE HEALTHY

12-6-71 Not as yellow

12-22-75 Looks good

1-9-85 ground to tip measurement arm #1 = 22". Peg to tip = 8½".
" " " " " #2 = 15½". " " " = 11½".

1/18/89 5" bud on south side — not pegged

Data Sheet

Feature: O. P. #32

Location: BAKER MINE RD PLOT

Item #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/29/70	7/8																	
12-19-70	1 3/4	1/2																
12-6-71	1 3/4	1/2																
1-1-73	1 1/2	1 1/4																
2-12-74	1 1/2	~~1/8~~																
2-4-75	2 1/2																	

Dead (Eaten?)

Specific Location (if necessary): 7 Feet S 55° W of O. P. # 31

~~(THIS PLANT MAY BE A CHOLLA)~~

Date 3/29/70

INITIAL DESCRIPTION

Cactus
O P #32

Location
Baker Mine Rd. Plot

Number of arms 1

Height of tallest arm 7/8"

General comments:

HAVING TROUBLE

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	7/8	bud														

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual	1/8	1/2														
	Total	1/8	1/2														
	Annual	0	0														
	Total	1	1/2														
	Annual	0	3/4														
	Total	1	1 1/4														
	Annual	0	1/4														
	Total	1	1 1/2														
	Annual		0														
	Total	2 1/2															
	Annual		Dead														
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																

Growth

CACTUS O.P. # 32 FIELD OBSERVATION SHEET # 1

Date 3/29/70

1. PLANT IS ONLY 7/8 OF AN INCH HIGH
2. GROWING TIP APPEARS DEAD
3. NEW GROWING BUD ON UP HILL SIDE MAY BE ALIVE BUT IS BROWN IN COLOR.

1-73 Struggling ; Bud on north has taken over.

2-4-75 Eleminated the 2 arm classification. The old arm # 2 is the plant now.

2/9/84 - plt. not tagged. Located W & touching Mammalaria . It's inside a limberbush. 4 ft. uphill of a rock cairn.

Data Sheet

Cactus OP 32 A

Location

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
12-1970	1¼																	
12-6-71	1¾																	
1-1-73	1¾																	
2-12-74	1½																	
2-4-75	2¼																	
12-24-75	2¼																	
1-13-77	3																	
1-27-78	4																	
1/24 1979	* 1																	
11/21/80	2																	
2/3/81	2½																	
12-16-81	* 3¼																	
12-14-82	4																	

Specific Location
(if necessary)

8 feet North of plant Number 32
(Inside of a Sangre de dreyo plant)

There are 3 plants in the ~~Sangre de drago~~ - a Ledgeby, a percussion and on the west - an Organ Pipe

* No Tag No P&G
5 FEET NW OF PLANT # 31

Date 12-19-70

Cactus OP32A

INITIAL DESCRIPTION

Location

Baker Mine

Number of arms 1

Height of tallest arm 1¼

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	1¼															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Annual	0															
	Total	0															
1-1-73	Annual	½															
	Total	½															
	Annual	0															
	Total	½															
	Annual	¾															
	Total	1¼															
	Annual	0															
	Total	1¼															
	Annual	¾															
	Total	2															
	Annual	1															
	Total	3															
79	Annual	1															
	Total	4															
	Annual	1															
	Total	5															
2/3/81	Annual	½															
	Total	5½															
	Annual																
	Total																
2/9/84	Annual																
	Total	4															

Growth

CACTUS FIELD OBSERVATION SHEET #

Date

1-1-73 Healthy!

2-4-75 Same

12-21-75 Looks a little peeked.

1-24-79 New arm bud. Old arm broken off

Data Sheet

Location: BAKER MINE RD PLOT

Center: O. P. #33

32 18 13 12

ARM #

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3/29/70	8	6¼	6½	5¾														
12-19-70	9¼	9⅛	8¾	8¾														
12-6-71	10½	10½	8½	10½														
1-1-73	11½	12¼	9½	13½														
2-12-74	15¾	15½	13½	18⅛														
2-4-75	18¼	19¾	16¾	22¼														
12-24-75	20⅛	21¼	18¼	24¼														
1-13-77	24¼	26	23	29														
1-27-78	28¾	31¼	25½	35														
1-24-79	34¼	38¼	31	40½														
1/21/80	39½	44¼	35½	45½	1													
2/3/81	42¼	49½	39¾	48½	8¼													
12-16-81	45¾	55	43	52¼	16½ / 5	3½*												
12-14-82	51	60	47⅞	60	11⅛	4½												
2-9-84	57¾	69	52	61½	21½	14¼												

Specific Location (if necessary)

Date 3/29/70

INITIAL DESCRIPTION

Cactus O.P.#33

Location
BAKER MINE RD PLOT

Number of arms 4

Height of tallest arm 32

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	32	18	13	12												

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	1 1/4	2 3/4	1 1/2	3												
	Total	1 1/4	2 3/4	1 1/2	3												
12/71	Annual	1 1/4	1 1/2	1/2	1 3/4												
	Total	2 1/2	4 1/4	2	4 3/4												
1/73	Annual	1	1 3/4	1	.3												
	Total	3 1/2	6	3	7 3/4												
2/74	Annual	4 1/4	3 1/4	4	4 1/2												
	Total	7 3/4	9 1/4	7	12 1/4												
2/75	Annual	2 1/2	3 1/4	3 1/4	4 1/4												
	Total	10 1/4	12 1/2	10 1/4	16 1/2												
12/75	Annual	1 3/4	2 1/2	1 1/2	2												
	Total	12	15	11 3/4	18 1/2												
1/77	Annual	4 1/4	4 3/4	4 3/4	4 3/4												
	Total	16 1/4	19 3/4	16 1/2	23 1/4												
1/78	Annual	4 1/2	5 1/4	2 1/2	6												
	Total	20 3/4	25	19	29 1/4												
79	Annual	5 1/2	7	5 1/2	5 1/2												
	Total	26 1/4	32	24 1/2	34 3/4												
1/80	Annual	5 1/4	6	4 1/2	5	1											
	Total	31 1/2	38	29	39 3/4	1											
2/3/81	Annual	2 3/4	5 1/4	4 1/4	3	7 1/4											
	Total	34 1/4	43 1/4	33 1/4	42 3/4	8 1/4											
12/16/81	Annual	3 1/2	5 1/2	3 1/4	3 3/4	8 1/4											
	Total	37 3/4	48 3/4	36 1/2	46 1/2	16 1/2	3 1/2										

Growth

Date

INITIAL DESCRIPTION

P.2

Coetus OP #33

Location

Number of arms _____

Height of tallest arm _____

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Growth Record

24 80¼ 49 63 11½

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	5¼	5	4¾	7¾	6	1										
	Total	43	53¾	41¼	54¼	22½	4½										
2/9/84	Annual	6¾	9	4¼	1½	10½	9¾										
	Total	49¾	62¾	45½	55¾	33	14¼										
1/9/85	Annual	~~13½~~	~~11~~	~~9½~~	~~9¾~~	0	~~11¾~~										
	Total	63¼	73¾	55	65½ / 8¾	30	26										
1/10/86	Annual	2	5	~~1¾~~ 3	1¼	4	7½										
	Total	65¼	~~78¾~~ 3	~~56¾~~ 4¼	10	34	33½										
1/7/87	Annual																
	Total	70½	84	17¾	12¼	38½	41¼										
1/27/88	Annual																
	Total	74¼	89½	19¾	14¼	42½	47	A									
1/18/89	Annual																
	Total	77½	92 3/4	23½	18 7/8	49 5/8	55	9									
1/22/90	Annual																
	Total	81	96	25½	18 7/8	50½	54¾	12½	8 5/8	(New bud south of arm # 7 — 8 5/8)							
1/16/91	Annual																
	Total	82½	28¼ / 68½*	28	21½	55½	56¼	18	17¾								
1-23-92	Annual																
	Total	85½	32¼	32	25	59½	66½	24½	22½								
	Annual																
	Total																
	Annual																
	Total																

GROWTH

GROWTH RAW DATA

* DIST from old to new peg (placed last year)

CACTUS O.P. #33 FIELD OBSERVATION SHEET #1

Date 3/29/70

THE GROWING TIP ON ARM #3 HAS BEEN SLIGHTLY DAMAGED

12-19-70 The growing top on arm #3 slightly damaged
1-1-73 - Healthy - coming out of above ↑.
12-16-81 33-3 Bud 3½" Arm not pegged
12-1482 #3 New Peg 4 1/2 From Top
1-9-85 arm #5 measured several times. 30" is correct
arm #4 new peg added 8 3/4" from tip. Old peg removed.

1-10-86 Arm #3 new peg

1-27-88 bud coming between arms #2 & #6 (about 4" length)
1-16-89 " " " " (9" long)

Data Sheet

Cactus OP 33A

Location

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
12-19-70	4½																	
12-6-71	4¾																	
1-1-73	6																	
2-12-74	6¾																	
2-4-75	8⅛																	
12-24-75	8½																	
1-13-77	9¼																	
1-27-78	12																	
1/24/1979	13¾																	
1/21/80	15¾																	
2/3/81	18¼ / 6																	
12-16-81	7¾																	
12-14-82	9½																	
2-9-84	12½																	

Specific Location
(if necessary)

10 feet south of plant #33 under iron wood
in bur sage (West of 33B

2-3-81 Nearly touching a young Saguaro which is growing TO the east of the organ pipe. Saguaro ~ 6 in. tall
Actually, between 2 small saguaros. The other is west ~ 2 ft.

Date 12-19-70

Cactus OP 33A

INITIAL DESCRIPTION

Location

Baker Mine

Number of arms 1

Height of tallest arm 4 1/2

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	4 1/2															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/71	Annual	1/2															
	Total	1/2															
1/73	Annual	1 1/4															
	Total	1 3/4															
2/74	Annual	3/4															
	Total	2 1/2															
2/75	Annual	1 1/4															
	Total	3 3/4															
12/75	Annual	1/2															
	Total	4 1/4															
1/77	Annual	3/4															
	Total	5															
1/78	Annual	2 3/4															
	Total	7 3/4															
79	Annual	1 3/4															
	Total	9 1/2															
1/80	Annual	2															
	Total	11 1/2															
2/3/81	Annual	2 1/2															
	Total	14															
12/16/81	Annual	1 3/4															
	Total	15 3/4															
12/14/82	Annual	1 3/4															
	Total	17 1/2															

GROWTH

INITIAL DESCRIPTION

P.2

Date:

Cactus: OP 33A

Location:

Number of arms _____

Height of tallest arm _____

General Comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16'
Length																

12'/a 7

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2/9/84	Annual	3															
	Total	20½	5¼														
1/9/85	Annual																
	Total	24 13¼	~~12'/a~~ ~~5¼~~														
1/10/86	Annual	1¾															
	Total	15	7¾														
1/7/87	Annual																
	Total	16	11¼														
1/27/88	Annual																
	Total	16½	14														
1/19/89	Annual																
	Total	20 3/4	18½														
1/23/90	Annual																
	Total	20 5/8	18 3/8														
11/16/91	Annual																
	Total	22¾	23¾														
1-23-92	Annual																
	Total	26¼	29¾														
	Annual																
	Total																
	Annual																
	Total																
	Annual																
	Total																

GROWTH

OK

RAW DATA

CACTUS 33A FIELD OBSERVATION SHEET #

Date 1-1-73 Healthy

1-27-78 yellowish

2/9/84 - one bud from base ca. 9½". Reading on arm #1 made from ground (B.M. 1/9/85)

1/9/85 - reading this yr. made from peg (13¼"). 24" if measured from ground.

- arm #2, measured 12¼" from ground to tip. 5¼" From peg to tip.

Data Sheet

Cactus: O. P. #34

Location: BAKER MINE RD PLOT

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	75	68	68	65	61	60	53	54	RM #									
3/29/70	6 3/4	6 1/2	6 1/4	6 3/4	10 1/4	7 1/4	7	6 3/4										
12-19-70	9 1/2	9 1/4	9 0/0	8 3/4	12 1/4	10 1/2	10 0/0	10 0/0	* 1 1/2									
12-6-71	9 1/2	9 3/4	9 1/2	9 1/4	12 3/4	11 1/2	11 1/4	11 1/2	* 7 1/4									
1-1-73	10 1/2	10 1/2	11 1/4	9 3/4	13 1/4	12 3/4	13 0/0	13 0/0	13 3/4									
2-12-74	13 3/4	12 3/4	14 1/4	12 3/4	15 3/4	15 3/4	17 1/2	16 3/4	• 25 1/4	4 1/2								
2-4-75	15 0/0	13 3/4	15 3/4	13 1/4	16 1/2	17 1/2	19 3/4	19 0/0	14 1/4									
12-24-75	K 3/4	15 1/2	17 1/4	15 1/4	17 3/4	19 1/4	28 0/0	20 1/2	18 1/2	15 1/4								
1-13-77	17 1/2	16 1/4	18 1/4	16 3/4	18 1/2	26 1/2	24	22 1/2	27	22 1/2								
1-27-78	19	17 1/2	19 1/4	18 1/2	19	22 1/2	26 3/4	25 1/4	33 1/4	31 1/2								
1-24-79	20	18 3/4	21 1/4	21	20 1/2	24 1/2	30	27 3/4	38 3/4	34 1/2 / 9								
1/21/80	21 3/4	20 1/4	23 1/2	22	21 3/4	26 1/4	32 1/4	29 3/4	~~46~~ 42 3/4	13 1/2								
2-3-81	22 1/2	21	25 1/4	24	22 3/4	28	34	31 3/4	46 1/4	17 1/2								
12-16-81	22 3/4	21 1/2	25 3/4	24 1/2	23 1/4	29 1/4	34 3/4	32 1/2	47 3/4	20 1/2								
12-14-82	25	22 1/2	28	25 3/4	27 1/4	30	36 1/2	33 1/4	49 3/4	23 1/2								
2-9-84	26	24	28 3/4	28 1/4	28	32	39 3/4	36	54	28								

Specific Location (if necessary)

TOP OF HILL

* No peg

• Peg at 4 1/2"

Date 3/29/70

INITIAL DESCRIPTION

Cactus

O. P # 34

Location

BAKER MINE RD PLOT

Number of arms 8

Height of tallest arm 75

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	75	68	68	65	62	64	53	54	bud							

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/70	Annual	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	3 3/4	3 1/4	1 1/2							
	Total	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	2 3/4	3 3/4	3 1/4	1 1/2							
12/71	Annual	0	1/2	1/2	1/2	1/2	1	1 1/4	1 1/2	5 3/4							
	Total	2 3/4	3 1/4	3 1/4	2 1/2	2 1/2	3 3/4	4 1/4	4 3/4	7 1/4							
M-73	Annual	1	3/4	1 3/4	1/2	1/2	1 1/4	1 3/4	1 1/2	6 1/2							
	Total	3 3/4	4	5	3	3	5	6	6 1/4	13 3/4							
2/74	Annual	3 1/4	2 1/4	3	3	2 1/2	3	4 1/2	3 3/4	11 1/2							
	Total	7	6 1/4	8	6	5 1/2	8	10 1/2	10	25 1/4							
2/75	Annual	1 1/4	1	1 1/2	1/2	3/4	1 3/4	2 1/4	2 1/4	7 1/2							
	Total	8 1/4	7 1/4	9 1/2	6 1/2	6 1/4	9 3/4	12 3/4	12 1/4	32 3/4							
12/75	Annual	1 3/4	1 3/4	1 1/2	2	1 1/4	1 3/4	2 1/4	1 1/2	4 1/4							
	Total	10	9	11	8 1/2	7 1/2	11 1/2	15	13 3/4	37							
1/77	Annual	3/4	3/4	1	1 1/2	3/4	1 1/4	2	2	8 1/2	7 3/4						
	Total	10 3/4	9 3/4	12	10	8 1/4	12 3/4	17	15 3/4	45 1/2	7 3/4						
1/78	Annual	1 1/2	1 1/4	1	1 3/4	1/2	2	2 3/4	2 3/4	6 1/4							
	Total	12 1/4	11	13	11 3/4	8 3/4	14 3/4	19 3/4	18 1/2	51 3/4							
79	Annual	1	1 1/4	2	2 1/2	1 1/2	2	3 1/4	2 1/2	5 1/2							
	Total	13 1/4	12 1/4	15	14 1/4	10 1/4	16 3/4	23	21	57 1/4	34 1/2						
1/80	Annual	1 3/4	1 1/2	2 1/4	1	1 1/4	1 3/4	2 1/4	2	4	4 1/2						
	Total	15	13 3/4	17 1/4	15 1/4	11 1/2	18 1/2	25 1/4	23	61 1/4	39						
2/3/81	Annual	3/4	3/4	1 3/4	2	1	1 3/4	1 1/2	2	3 3/4	4						
	Total	15 3/4	14 1/2	19	17 1/4	12 1/2	20 1/4	26 3/4	25	65	43						
12/16/81	Annual	1/4	1/2	1/2	1/2	1/2	1 1/4	3/4	3/4	1 1/2	3						
	Total	16	15	19 1/2	17 3/4	13	21 1/2	27 1/2	25 3/4	66 1/2	46						

Date

INITIAL DESCRIPTION

P. 2

Cactus OP #34

Location

Number of arms _____

Height of tallest arm _____

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length																

Growth Record

68¼ 61½ 61¾ 58¼ 50¾ 78¼ 46 47¼ 18½ 25½

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
12/14/82	Annual	2¼	1	2¼	1¼	4	¾	1¾	¾	2	3						
	Total	18¼	16	21¾	19	17	22¼	29¼	26½	68½	49						
2/9/84	Annual	1	1½	¾	2½	¾	2	3¼	2¾	4¼	4½						
	Total	19¼	17½	22½	21½	17¾	24¼	32½	29¼	72¾	53½						
1/9/85	Annual	~~8~~	~~7¼~~	~~8~~	~~8~~	~~8¼~~	~~10½~~	~~9¼~~	~~8~~	(18½)	(25¾)						
	Total	27¼	25¼	30½	29½	26	34½/13	41¾	37¼	54¼	31¾						
1/10/86	Annual	½	?	1¼	½	½	1	1½	¾	1½	3¼						
	Total	27¾	25	31¾	30	26½	14	43¼	38	55¾	35						
1/7/87	Annual																
	Total	29¼	27¾	34	32¼	27¾	15¾	46¼	40¼	59¼	38¾						
1/27/88	Annual																
	Total	29⅝	28⅞	34¾	32½	28⅞	16⅞	47½	40⅞	62⅝	42⅜						
1/14/89	Annual																
	Total	30¾	32¼	38⅛	34⅜	30	20½	49½	47⅜	66¾	47½						
1/22/90	Annual																
	Total	33¼	34	37⅞	36¼	32½	23¼	52	45	68¾	50¼						
1/16/91	Annual																
	Total	33¾	35½	39½	36	32¾	25	52	46	71	54½						
1-23-92	Annual																
	Total	36	38½	42	38¾	34½	28¼	55¼	49	73½	59						
	Annual																
	Total																
	Annual																
	Total																

GROWTH

RAW DATA

CACTUS O.P. #34 FIELD OBSERVATION SHEET #1

Date 3/29/70

ARM #5 HAS A JOINT ABOUT 5" FROM TOP

12-19-70 base of arm #6 bud 1½"

1-1-73 On #9 put in peg at 6¾ inches

Healthy

7-12-74 Bud at base of #3 4½"

12-24-75 " " " " " " 15¼"

1-13-77 " " " " " " 22½

1-27-78 " " " " " " 31½

1-24-79 Arm #10 pegged

7/9/84 - arm #6, pin partially broken off
- hedgehog cactus growing at base of O.P. #34

1-9-85 - arm #6 new peg. from peg to tip = 13". Old peg removed (34½" measured before removing).

Data Sheet

Cactus
O.P. 35

Location
35 ft. uphill from plant #12

FORM A

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1-1-73	3½																	
2-12-74	3⅝																	
12-24-75	3½																	
1-27-78	6																	
		DEAD																

Specific Location
(if necessary)

East of small saguaro

Date 1-1-73

INITIAL DESCRIPTION

Cactus OP#35

Location
BAKER MINE RD. PLOT

Number of arms 1

Height of tallest arm 3½

General comments: Growing tip damaged

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	3½															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2-12-74	Annual	0															
	Total	0															
12/75	Annual	0															
	Total	0															
	Annual		DEAD														
	Total																
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GROWTH

CACTUS FIELD OBSERVATION SHEET #

Date 1-1-73

Growing tip damaged.

12-24-75 Growing tip dead & one bud dead. Plant still OK

1-27-78 Plant healthy, one bud is ~~still~~ growing.

Data sheet

Cactus

O.P. 36

Location

Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1-24-79	2½																	
1/21/80	Dead - eaten																	

Specific Location
(if necessary)

Approx. 20 paces straight downslope from O.P. 18.
Found in the open

Date

INITIAL DESCRIPTION

Cactus OP #36

Location

Baker Mine Rd Plot

Number of arms 1

Height of tallest arm 2 1/2

General comments:

Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length	2 1/2															

Growth Record

Date	Arm #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1/21/90	Annual	Dead - eaten															
	Total																
	Annual																
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Growth