



United States
Department of
Agriculture

Soil
Conservation
Service

Plant Materials Center
3241 N. Romero Road
Tucson, Arizona 85705

Subject: ECS - 'Seco' Registration Date: December 16, 1987

To: P. A. Miller, Chairman C852 File code: 190-18
U.S.D.A. - ARS - National Program Staff
Building 005, BARC-W
Beltsville, Maryland 20705

Dear Sir:

Attached is the form to be submitted with the variety registration article and release notice for 'Santa Rita' fourwing saltbush. A black and white or color print can be provided upon request.

If you have any questions, please call me at FTS 762-6491 or commercial (602)629-6491.

Thank you,

Bruce D. Munda
TPMC Manager

cc: Reed Barker (4), Subcommittee Chairman, USDA - ARS, Mandan ND
Jim Briggs, NPMC Manager, Beltsville MD
Bob Crawford, SRC, Phoenix AZ



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bracted spikes and panicles; staminate perianth is 3-5 cleft (3-5 stamens); pistillate absent, 2 stigmas; fruit bracts are sessile or short peduncled, the body (4-12 mm long), united to bifid apex, developing 2 pairs of wings, margin of wings is usually entire. The seeds are 1.5-2.5 mm long, brown, radicle superior. 'Santa Rita' is diploid according to Dr. H. Stutz, Brigham Young University, Provo, Utah.

Development and Use: 'Santa Rita' fourwing saltbush was comparatively evaluated with eight accessions of fourwing saltbush in the 1966 Shrub Initial Evaluation Planting (IEP) and thirty-five accessions of saltbush in the 1969 Shrub IEP. 'Santa Rita' was selected as being the best overall performer in vigor and cover. In 1980, rooted cuttings from the original material was used to establish a breeder's block. A ratio of one (1) male to five (5) female plants were space planted with 5 feet within the rows and 15 feet between rows. Continued testing included both plants and direct seeding at about 25 sites in southern Arizona, California, New Mexico and Texas. This strain has shown superior performance to all accessions of fourwing saltbush, including the standard of comparison, 'Marana'.

It has estimated seed yields of 350 pounds of dewinged seed per acre (393 kg/ha) per year with specified orchard design. There are about 60,000 dewinged seeds per pound (132,000/kg).

'Santa Rita' was selected for use in critical area stabilization, shelterbelts, range improvement and improvement of the vegetative components of wildlife habitat. Its leaves, stems and fruit provide browse in all seasons for livestock and wildlife.

Area of Adaptation: Fourwing saltbush is one of the most widespread and adaptable of North American shrubs. It grows in a variety of soil types from the Great Plains to the Pacific coast ranges and from Canada to Mexico at elevations from below sea level to 8000 feet (2440 m). 'Santa Rita' fourwing saltbush is well adapted to a wide range of soil textures from sandy loams to clay loams. 'Santa Rita' fourwing saltbush is best adapted to the Sonoran desert zones but also does well in the Mohave and Chihuahuan deserts. It appears to have salt tolerance similar to other fourwing saltbush strains. Due to its hot desert origin, 'Santa Rita' has performed significantly better than 'Rincon', 'Wytana' and 'Marana' in the southwestern climatic zones. It is a taller, more vigorous grower than any other accession but is not as cold tolerant. 'Santa Rita' fourwing saltbush is adapted to 200 to 4000 feet (61-1220 m) elevation and to an average annual precipitation of 8 to 16 inches (20-41 cm).

Seed and Plant Source: The Tucson Plant Materials Center will be responsible for maintaining a supply of foundation and breeder seed. Foundation seed and plants will be available for establishing seed source nurseries for commercial production through the Arizona Crop Improvement Association. Standards for all classes of seed will be included in the Arizona Seed Certification Handbook.

Suggested release date of 'Santa Rita' fourwing saltbush is March, 1987. Limited quantities of foundation seed and plants will be available immediately for commercial nursery production.

James B. Newman
Arizona Soil Conservationist

USDA - Soil Conservation Service

12/3/86
Date

James B. Newman

Director, Ecological Sciences and
Technology Division
USDA - Soil Conservation Service

5/12/87
Date

FOR *M. E. Carter*

Administrator
Agricultural Research Service

JUN 5 1987
Date

L. M. Dewhurst
Director, Arizona Agricultural

Experiment Station
University of Arizona

4/20/87
Date

Table 1

1966 COOL-SEASON FORB AND SHRUB SPECIES IEP

Genus/Species	ID No.	Comp	Plant	Eval	Germ	Plant	Stand	Avg	Canopy Size(cm)	
		Rating	Date	Years	Rating	Establish	Uniform	Vigor	Height	Width
Atriplex canescens	A-16831	2	11/66	66-70	2	2	3	2	76	89
Atriplex canescens	A-16568	3	11/66	66-70	2	3	3	3	81	76
Atriplex canescens	T04468	2	11/66	66-70	1	2	2	1	122	122
Atriplex canescens	T03553	2	11/66	66-70	2	2	2	1	139	128
Atriplex canescens	P-15585	4	11/66	66-70	2	4	4	4	30	101
Atriplex <i>lentiformis</i>	A-17079	2	11/66	66-70	1	2	2	2	114	101
Atriplex <i>lentiformis</i>	T26898	3	11/66	66-70	1	4	3	4	76	81
Atriplex <i>nuttallii</i>	P-15586	4	11/66	66-70	5	4	4	4	18	36

1970 SHRUB AND FORB SPECIES IEP

Atriplex <i>atacanensis</i>	330655		4/70	70-74	No emergence					
Atriplex canescens	T04468	2	4/70	70-74	1	2	3	3	110	95
Atriplex canescens	T03553	1	4/70	70-74	2	1	2	2	145	130
Atriplex canescens	T03554	3	4/70	70-74	2	1	3	3	80	85
Atriplex <i>canescens</i>	A-17358	3	4/70	70-74	2	3	3	3	81	76
Atriplex canescens	T04468	3	4/70	70-74	2	3	3	3	60	90
Atriplex <i>canescens</i>	330657	2	4/70	70-74	2	2	2	3	92	95
Atriplex canescens	330658	3	4/70	70-74	1	3	2	4	75	90

Table 2

1977 SHRUB, TREE & ANNUAL FORB IEP

(Best of 104 *Atriplex* spp. planted are rated below)

<u>ID No.</u>	<u>Comp No.</u>	<u>Plant Date</u>	<u>Germ Pate</u>	<u>1977 Estab</u>	<u>1978 Vigor</u>	<u>1979 Vigor</u>	<u>1980 Vigor</u>	<u>1981 Vigor</u>	<u>Leaf Prod</u>	<u>Seed Prod</u>	<u>Abil Spread</u>	<u>'79 % Stand Hgt</u>	<u>1978-Can Hgt</u>	<u>1978-Can Wdh</u>	<u>1980-Can Hgt</u>	<u>1980-Can Wdh</u>
T03553	2	9/77	5	2	2	3	2	3	3	5	7	60	120	210	200	450
T03554	4	9/77	3	6	6	2	3	4	5	0	0	40	130	210	170	420
T03555	6	9/77	3	6	6	5	6	6	5	0	0	40	110	170	150	240
T04468	^a	9/77	8													
346419	k	9/77	9	8												
T03557	5	9/77	5	5	5	3	6	7	5	0	0	40	120	190	130	450
T03558	5	9/77	5	3	3	4	6	7	5	7	9	60	120	190	140	400
T03559	5	9/77	7	4	4	4	5	6	5	5	0	90	135	190	160	200
T03560	7	9/77	5	7	7	7	8	7	7	0	0	30	120	175	120	150
T03562	7	9/77	5	7	7	7	8	9	7	0	0	40	100	165	90	110
T03563	5	9/77	5	5	5	4	6	7	5	0	0	90	110	170	140	220
T03565	6	9/77	3	6	6	6	6	5	5	0	0	10	110	60	140	243
T03566	5	9/77	5	3	3	4	6	5	5	7	9	70	140	210	145	230
T03567	7	9/77	7	4	4	4	8	6	5	7	9	80	120	215	160	220
T03568	5	9/77	5	5	5	4	5	5	5	5	9	70	110	195	130	200
330657	5	9/77	5	5	5	6	5	6	5	0	0	20	80	100	65	130
T03569	4	9/77	3	4	3	4	3	5	5	3	9	50	145	215		
346419	9	9/77	9	8	8	7	5		7	0	0	40	15	65	10	10 [£]

NOTE: All accessions listed are *Atriplex canescens*.^a Died 12/77^b Died 12/78^c Died 1980

Table 3

1971-73 Pima Mining Company FEP
(Mixed Tailings Barley Stubble Plot)

Genus/Species	Ident	Overall Vigor ¹	Seedling Establishment	% Stand
Atriplex semibaccata	Corto	1	3	60
Atriplex semibaccata	299488	1	2	80
Atriplex canescens	T03553	1	2	80
Atriplex canescens	A-16652	1	2	80
Atriplex lentiformis	330671	1	2	80
Enchylaena tomentosa	106712	3	4	20

Table 4

1970 Wellton Highway Mulch-Tucked Plots
(Irrigated to Establish)

Genus/Species	Ident	Overall Vigor ¹	Seedling Establishment	1972 Vigor	1973 Vigor
Atriplex semibaccata	Corto	5	5	6	6
Atriplex semibaccata	299488	5	5	6	6
Enchylaena tomentosa	106712	6	6	6	0
Atriplex canescens	T03553	1	1	1	2
Atriplex lentiformis	330671	1	1	2	2

Table 5

1970 Wellton Highway Mulch-Tucked Plots
(Non-Irrigated)

Genus/Species	Ident	Overall Vigor ¹	Seedling Establishment	1972 Vigor	1973 Vigor
Atriplex semibaccata	Corto		0	0	0
Atriplex semibaccata	299488		0	0	0
Enchylaena tomentosa	106712		5	0	0
Atriplex canescens	T03553	2	2	4	5
Atriplex lentiformis	330671		0	0	0

¹ Ratings: 1=excellent; 4=average; 9=very poor; 0=died

Table 6

1977-79 RED ROCK CFT

<u>Genus/Species</u>	<u>Ident</u>	<u>Plant Date</u>	<u>Years Eval</u>	<u>Overall Rating</u>	<u>Germ</u>	<u>Estab</u>	<u>1981 Vigor</u>	<u>% Stsnd</u>	<u>1984 Height</u>	<u>1984 Canopy (cm) Width</u>
Atriplex canescens	T03553	9/77	77-84	1	3	3	2	60	148	165
Atriplex canescens	T03553	10179	79-84	1	3	2	1	95	156	173
Atriplex lentiformis	330671	9/77	77-84	3	2	5	5	5	120	145
Atriplex lentiformis	330671	10179	79-84	3	2	5	5	10	180	200
Atriplex nummularia	T03612	9/77	77-		8	9				
Atriplex nummularia	T03612	10179	77-		8	8	9	<5	75	80

Ratings: 1=excellent; 4=average; 9=very poor; 0=died

Table 7

1978 RANGE SEEDINGS IN SOUTHERN ARIZONA

(Harvey Nessmith's Trial Plots)

Genus/Species	Ident	Overall Viaor	Seedling Viaor	Location
Atriplex canescens	T03553	1	1	Florence
Atriplex lentiformis	330671			Florence
Atriplex semibaccata	Corto	3	2	Florence
Atriplex polycarpa	399195			Florence
Atriplex canescens	A-19194			Florence
Atriplex canescens	T03553	1	1	Apache Junction
Atriplex lentiformis	330671			Apache Junction
Atriplex semibaccata	Corto	2	3	Apache Junction
Atriplex polycarpe	399195			Apache Junction
Atriplex canescens	A-19194			Apache Junction

Ratings: 1=excellent; 4=average; 9=very poor; 0=died

Table 8

1970 EGUME, SHRUB & FORT SPECIES ADVANCED EVALUATION PLANTINGS

Final Summary for *Atriplex canescens* Accessions

Identifications	Eval	Leaf Prod	Seed Prod	Cold Resist	Date Mature	Stand Rate	Canopy (cm)	
	Year						Vigor	Height
PI 330657	1970	5				3		
	1971	1		1		3		
	1972	1	1	3	3	8-17	7	91 122
	1973	1		1	1		7	127 189
PI 330658	1970	7				3		
	1971	5		1		3		
	1972	3	5	5	5		5	
	1973	3		9	1			102 152
A-16652, T04468	1970	5				5		
	1971	3		1		5		
	1972	1	1	3	5		7	76 91
	1973	3	3	9	5			173 224
T03553, A-16805 'Santa Rita'	1970	5				5		
	1971	3		1		5		
	1972	1	1	1	3	8-17	1	107 107
	1973	1	1	1	1	8-15	1	173 254
T03554, A-17157	1970	5				5		
	1971	3		1		5		
	1972	3	5	5	3		5	61 61
	1973	3		7	3			152 165
T04468, A-17452	1970	5				5		
	1971	1		1		5		
	1972	1	1	3	5		5	76 91
	1973	3	1	9	5			173 178
A-17358	1970	5				5		
	1971	3		1		5		
	1972	1	1			9-01	5	
	1973	3		7	3			142 132

Ratings: 1=excellent; 4=average; 9=very poor

Table 9

1972 CHANNEL SLOPE FEP

(Located at the TPMC on the North-Facing Slope)

Genus/Species	Ident.	Seed Date	Comp. Vigor ¹	Leaf Prod	Seed Prod	% Stand	1975 Canopy (cm) Height	Width	Mature Rate	Uniform Rating
Atriplex canescens	346419	3/72	7	9	9	5	7	10		7
Atriplex canescens	330657	3/72	4	1		15	100	120		4
Atriplex canescens	392078	3/72	2	2		5	65	80		4
Atriplex canescens	T03553	2/72	1	2	7	70	200	230	July	1
Atriplex lentiformis	T26898	3/72	4	6		90	300	290		1
Atriplex semibaccata	A-17852	3/72	No emergence							

¹ Ratings: 1=excellent; 3=good; 4=average; 7=poor; 9=very poor; 0=dead

Table 10

1977 HAYDEN, ARIZONA MINE TAILINGS

(Transplanted Shrubs)

Genus/Species	Ident.	Non-Limed Site ¹	Limed Site ¹	Remarks
Atriplex lentiformis	330671	0	7	
Atriplex polycarpa	T03608	0	9	
Atriplex torreyi	T03619	7	5	
Atriplex rhagodiodes	T03614	7	6	Insect galls on LIMED
Atriplex nummularia	T03612	7	3	
Atriplex muelleri	T03599	7	5	Many dead branches on both sites
Atriplex spongiosum	330668	0	4	One good plant; others dead on LIMED
Atriplex glauca	T03586	4	4	Seed set on both sites
Atriplex canescens	T03553	3	1	Appears to have good cold and drought tolerance

¹ Ratings: 1=excellent; 3=good; 4=average; 7=poor; 9=very poor; 0=dead

Table 11

1979 CATERPILLAR PROVING GROUNDS FEP

<u>Genus/Species</u>	<u>Ident.</u>	<u>Treatment</u>	<u>Stand</u>	<u>Plant</u> <u>Height(cm)</u>	<u>5/82</u> <u>Vigor¹</u>	<u>9/82</u> <u>Vigor¹</u>	<u>1/85</u> <u>Vigor¹</u>
Atriplex canescens	T03553	Furrows	4	76	1	2	1
		Potholes	10	122	1	1	1
		Sand Mulch	25	46	2	2	1
		Benches	80	81	3	3	3
Atriplex lentiform s	330671	Furrows	2	30	3	3	4
		Potholes	4	20	3	3	5
		Sand Mulch	0	0	0		
		Benches	20	25	3	3	4
Atriplex nummu aria	T03612	Furrows	0		0		
		Potholes	0		0		
		Sand Mulch	0		0		
		Benches	0		0		
Atriplex semibaccata	432439 Corto	Furrows	10	15	1	4	6
		Potholes	75	15	3	4	6
		Sand Mulch	0	0	0	0	
		Benches	10	15	3	7	9

¹ Ratings: 1=excellent; 3=good; 4=average; 7=poor; 9=very poor; 0=dead

Table 12

1982 FOURWING SALTBUSH INTER-CENTER STRAIN TRIAL

(Located at Red Rock, Arizona)

Accession	Plant Date	1986 % Stand	1984 Vigor ¹	1985 Vigor ¹	1986 Vigor ¹	Average 1985 Plant Height(cm)	Average 1985 Canopy Width(cm)	Remarks
PI 476816	1/82	80	4	4	3	70	48	'Marana'
PI 346419	1/82	0	0					'Wytana'
PI 478841	1/82	0	0					'Rincon'
T03553	1/82	60	2	3	1	99	75	Appears to be resistant to rabbit damage 'Santa Rita'
PI 478837	1/82	0	0					
T04473	1/82	16	6	7	5	87	47	
PI 478838	1/82	0	0					
T04478	1/82	20	6	7	8	10	10	
T04488	1/82	0	7	0				
PI 432434	1/82	20	6	6	6	20	10	Grazed by rabbits
PI 432436	1/82	20	2	3	3	90	91	
T03126	1/82	20	7	8	9	9	9	
T03134	1/82	40	6	7	6	45	34	
T03135	1/82	0	8	0				
T03136	1/82	0	9	0				Grazed by rabbits and/or rodents
128162	1/82	20	5	5	6	44	27	
T28163	1/82	0	0					
128164	1/82	0	7	0				
T28165	1/82	0	8	0				
T28166	1/82	0	0					
T30609	1/82	20	5	6	5	26	20	
T29097	1/82	20	4	3	3	103	108	
T29096	1/82	0	9	0				
104474	1/82	40	5	6	5	30	27	Rabbit damage (one plant)

¹ Ratings: 1=excellent; 3=good; 4=average; 7=poor; 9=very poor; 0=dead

Table 13

1984 PAGE RANCH FEP

(Transplanted Shrubs)

<u>Genus/Species</u>	<u>Ident.</u>	<u>Eval</u>	<u>%</u>	<u>Leaf</u>	<u>'Seed</u>		<u>Average</u>	<u>Average</u>
		<u>Year</u>	<u>Stand</u>	<u>Prod</u>	<u>Prod</u> ¹	<u>Vigor</u> ¹	<u>Plant</u>	<u>Canopy</u>
							<u>Ht(cm)</u>	<u>Wd(cm)</u>
Atriplex canescens	T03553	1984	80	3	0	2	48	41
		1985	75	2	5	2	120	98
		1986	50	2	3	1	119	102
Atriplex canescens	Marana	1984	75	4	0	5	38	30
	476816	1985	63	5	0	6	80	50
		1986	50	5	9	3	80	61
Atriplex canescens	330671	1984	0	0	0	0		
Atriplex canescens	Casa	1984	0	0	0	0		

¹ Ratings: 1=excellent; 3=good; 4=average; 7=poor; 9=very poor; 0=dead

Table 14

1982 FOURWING SALTBUSH INTER-CENTER STRAIN TRIAL
(Antelope Valley, California)

PI Number	Eval Year	No. Surv	Ease Dia(cm)	Canopy Wd(cm)	Plant Ht(cm)	Vigor	Unif	Stem		Fol.	
								Abun	Dens	Abun	Dens
T30609	1984	5	5	240	100	2	2	3	3	3	3
Rincon	1985	5	6	300	110	1	1	2	2	2	2
346819	1984	0									
Wytana	1985	0									
476816	1984	6	6	190	90	2	1	2	2	3	3
Marana	1985	6	8	210	90	1	1	2	2	2	2
T03126	1984	2	5	170	80	2	2	3	3	3	3
	1985	2	5	200	80	2	2	2	2	2	2
T03134	1984	5	4	200	70	1	2	3	3	3	3
	1985	5	6	220	80	1	1	2	2	2	2
T03135	1984	5	4	150	90	3	2	3	3	3	3
	1985	5	4	160	100	3	2	2	2	2	2
T03136	1984	5	2	100	60	2	1	2	2	3	3
	1985	5	3	100	70	3	2	2	2	2	2
T03553	1984	4	6	170	100	2	2	3	3	2	2
Santa Rita	1985	4	7	190	110	1	2	2	2	2	2
T04468	1984	4	5	160	90	2	2	3	3	3	3
	1985	4	6	180	90	2	2	2	2	2	2
T04473	1984	5	4	100	80	3	3	3	4	3	3
	1985	5	5	140	80	4	4	2	2	2	2
T04474	1984	4	3	100	80	4	4	3	4	3	3
	1985	4	3	120	80	5	4	2	2	2	2
T04478	1984	3	3	100	70	4	6	3	4	3	3
	1985	3	3	140	80	4	4	2	2	2	2
T04488	1984	5	3	120	80	5	4	3	4	3	3
	1985	5	4	160	80	4	4	2	2	2	2
T28162	1984	4	2	110	90	4	6	3	4	3	3
	1985	4	3	140	100	6	6	2	2	2	2
T28163	1984	5	4	140	70	2	3	3	3	3	3
	1985	5	6	170	70	2	2	2	2	2	2
T28164	1984	4	5	140	80	4	4	3	4	3	3
	1985	4	5	140	70	6	6	3	3	3	3
T28165	1984	5	3	130	60	4	4	3	4	3	3
	1985	5	3	160	70	6	5	3	3	3	3
T29096	1984	5	4	150	100	4	4	3	4	3	3
	1985	5	4	180	100	3	3	3	3	3	3
T29097	1984	5	6	220	110	3	3	3	3	3	3
	1985	5	8	280	90	2	2	3	3	3	3
432434	1984	5	6	180	70	2	2	3	3	3	3
	1985	5	7	180	80	2	2	3	3	3	3
432436	1984	6	4	110	40	2	3	3	3	3	3
	1985	6	6	130	60	2	2	3	3	3	3

Ratings: 1=excellent; 2=good; 4=average; 7=poor; 9=very poor; 0=dead

Table 15

1982 FOURWING SALT BUSH INTER-CENTER STRAIN TRIAL

(Knox City, Texas)

PI No/Cultivar	1984, Vigor ¹	1985, Vigor ¹
T04473	2	2
Rincon	3	3
T29096	4	4
T04488	5	5
T03553 ²	5	6
Wytana	7	9
432434	2	2
T28162	3	3
T04468	4	4
T03136	5	6
T03135	6	6
T04474	3	3
T29097	4	4
Marana	5	5
432436	4	4
T03126	5	5
T28163	4	4
T03134	5	5
T28164	5	5
T04478	5	5
T28165	5	5

¹ Ratings: 1=excellent; 5=average; 9=very poor
² 'Santa Rita'; some winter dieback

Table 16

Corp of Engineers Planting

Santa Fe, New Mexico

<u>Species/Accession</u>	<u>Plant Date</u>	<u>Vigor</u>	<u>Height</u>	<u>Width</u>	<u>% Survival</u>	<u>Evaluation Date</u>
ATCA-Marana	7/82	3	18	12	25	10/84
ATCA-9003553	7/82	3	18	16	60	10/84
ATFA-9005294	7/82	0	0	0	0	10/84

NOTE: Information provided by William Fuller



Subject: Plant Materials plot evaluations
1977 MLRA 40 CFTs

Date: July 25, 1986

To: Scott Lambert

File Code:

On July 25, 1986 I took you to two old CFT plots in 40 Resource Area to look at T-3553 Fourwing saltbush planted in 1977. The Yost Ranch plot near Florence Junction is located in SE 1/4, SE 1/4 Sec 29 T1S R10E at an elevation of 1980 ft. The range site is, Clay loam upland 40-1 (10-12 in.ppt.). Of the 35 species seeded in 1977 (11-3-77) only 5 are alive today:

T-3553 fourwing saltbush- one large male and one large female plant exist on the plot. Both are in good vigor. We counted 12 young plants (1-2 ft.) in the plot which are the offspring of the mature ones.

Cochise lovegrass - established plants in fair vigor with reproduction filling in parts of the plot.

A-68 Lehman's lovegrass - established plants in fair vigor with reproduction filling parts of the plot.

Catalina Boers lovegrass- established plants in fair vigor with some reproduction.

Common Bufflegrass - planted in June 1980 established plants with fair vigor and no reproduction.

The Cunningham (now Bader) Ranch plot near Cochran is located in the SW 1/4, SW 1/4 Sec 11 T5S R11E at an elevation of 2250 ft. The range site is, Sandy loam upland 40-1 (10-12 in.ppt.). Of the 35 species seeded in 1977 (10-26-77) only 6 are alive today:

T-3553 fourwing saltbush- one large male and one large female plant exist on the plot. Both are in good vigor. We saw no reproduction on this species.

Cochise lovegrass - established plants and lots of reproduction, spreading throughout the plot. Good vigor.

Catalina Boers lovegrass- established plants and lots of reproduction, spreading throughout the plot. Good vigor.



A-68 Lehmans lovegrass - established plants and lots of reproduction, spreading throughout the plot. Good vigor. Some mortality of older plants indicating a shorter lifespan for Lehmans as opposed to Cochise & Boers.

Palar Wilman lovegrass - established plants in poor vigor, no reproduction.

Viva galleta grass - established plant in good vigor, no reproduction.

I'll get the photos we took to you as soon as I get them developed.



Dan Robinett
Range Conservationist
Tucson Area Office

cc Jake Garrison