REC'D SEP 30 1997

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OK by Sonja.
JB

PERFORMANCE REPORT

State: New Mexico Project Number E-31-3

Grant Title: Endangered Species

Project Title: Status of Listed and Category Herpetofauna

Contract Period: July 1, 1996 To: June 30, 1997

I. Program Narrative Objective

To obtain, analyze, and report information necessary for determining or monitoring the status and threats to the species of amphibians and reptiles in southwestern New Mexico that are listed by the State of New Mexico as endangered or threatened or as a federal Notice of Review species by the U.S. Fish and Wildlife Service (USFWS).

II. Objectives

A. The species on the attached list have been prioritized. Emphasis during Segment 3 will be placed on research into the status and distribution of the southwestern toad, *Bufo microscaphus*, narrowhead garter snake, *Thamnophis rufipunctatus*, and Colorado River toad, *Bufo alvarius*. The status of other species included on the list will be investigated opportunistically.

B. Select historic sites suspected of being occupied by these species will be visited and the species presence/absence will be noted. Established study sites for *T. rufipunctatus* and *B. microscaphus* will continue to be monitored. If possible, a study site for radio telemetry investigations of *B. alvarius* will be established in southern Hidalgo County.

C. Analyze findings from the studies implemented above and prepare a report summarizing the status of each species studied under objective A (above).

Sent 2 copies to Sonja J.

III. Summary of Progress

A. Emphasis during this segment was placed on the study of *Thamnophis rufipunctatus* at an established study site along the San Francisco river near the San Francisco Hot Springs. Although most effort was placed on the species listed in II-A above, NMGF contractors continued investigations in Guadalupe Canyon and on the Gray Ranch in southwest Hidalgo County. No specimens of *Bufo alvarius*, *Rana chiricahuensis*, *R. yavapaiensis*, or *Thamnophis eques* were encountered during this period.

B. Emphasis during this segment was placed on the study of *Thamnophis rufipunctatus* and *Bufo microscaphus* at an established study site along the San Francisco River near the San Francisco Hot Springs. Only 6 adult *B. microscaphus* were encountered. Numerous tadpoles and egg masses were observed, thus indicating successful reproduction at our study site. These were subsampled to aid in the construction of a reproductive chronology. Lab studies of these specimens are ongoing. Hybridization with *B. woodhousii* was not detected in the small sample of adults observed, nor were specimens of *B. woodhousii* noted to occur within the study area.

Approximately 450 captures and recaptures of *T. rufipunctatus* have been logged to date with 241 during this project segment. All specimens collected have been uniquely marked with PIT tags or by scale clipping. Habitat parameters have been measured at select sites in the study area. See Table 1 for more data. Although most of the effort during this period was placed on the species listed in II-A above, NMGF contractors continued investigations in Guadalupe Canyon and on the Gray Ranch in southwest Hidalgo County where many of the species on the prioritized list occur. A total of 44 trips were made to Guadalupe Canyon resulting in capture of 69 *Cnemidophorus burti*, 12 *Eumeces tetragrammus*, and 2 *Senticolis triaspis*. Tentative plans for a radio telemetry study of *S. triaspis* were not carried out as the timing of transmitter manufacture and the activity period of these snakes did not coincide. See Tables 2 and 3 for more data. A total of 42 trips were made to the Gray Ranch resulting in capture of 20 *Sceloporus scalaris*. Although *S. scalaris* is not included on the prioritized list it is a state listed as threatened and data on its status are included here. See Table 3 for more data. No specimens of *Bufo alvarius*, *Rana chiricahuensis*, *R. yavapaiensis*, or *Thamnophis eques* were encountered during this period.

Threat Assessment:

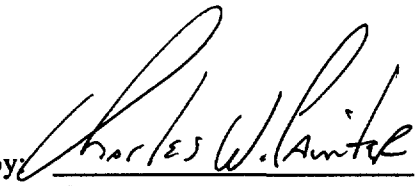
Threats to the species under investigation vary. The most serious threat perceived during this segment was the habitat altering activity of trespass cattle on the portion of the San Francisco River under study. Cattle can quickly trample riparian areas, especially during dry summers. During this period trespass cattle were observed on the study site during each visit, and lush shoreside vegetation of sedges, rushes, willows, and small cottonwoods in areas of high use are starting to show signs of trampling and overgrazing. At present we have no defensible data to indicate that severe overgrazing eliminates *T. rufipunctatus* from an area. However, on the severely overgrazed riparian habitat adjacent to our study area there does not appear to be as many *T. rufipunctatus* but no data to support that statement have been collected.

An additional, yet unknown, threat to *T. rufipunctatus* and *B. microscaphus* in the San Francisco Hot Springs area includes the proposed use of the herbicides Impazapyr (Stalker) and Triclopyr (Galon 4 and Garlon 3A) for saltcedar control (see Environmental Assessment Report For the Saltcedar Control Project, Glenwood Ranger District dated 9/12/96). This project has not been initiated and the impacts to the well-studied populations of these species at San Francisco Hot Springs will be investigated. It is not known how these species would thrive in a saltcedar monotypic stand.

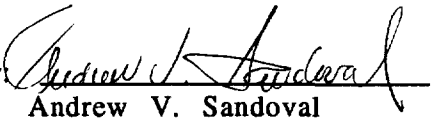
Threats to these populations from develompent, disturbance, overcollection, disease, or predation are not considered significant at this point. A sample of catfish stomachs is available from this area and these will be disected during the next segment to investigate the question of predation by non-native catfish.

The suite of state-listed species in Guadalupe Canyon (both those on this list and others) including *Bufo alvarius, Rana chiricahuensis, R. yavapaiensis, Cnemidophorus burti, Eumeces tetragrammus, Heloderma suspectum*, and *Senticolis triaspis* are relatively secure. However, the current private ownership is strongly supportive of prescribed management fire on a repeated basis. It is unknown what fire frequency is appropriate for this fragile, cottonwood-dominated riparian zone. Threats from habitat loss (other that fires) and overgrazing do not seem to be an issue currently. Overcollection on this private land is also not considered an issue.

C Performance reports have been prepared for this segment E-31-1/2 and have been submitted to the USFWS Office of Federal Aid.

Prepared by: 

Charles W. Painter
Project Biologist

Approved by: 

Andrew V. Sandoval
Chief, Conservation
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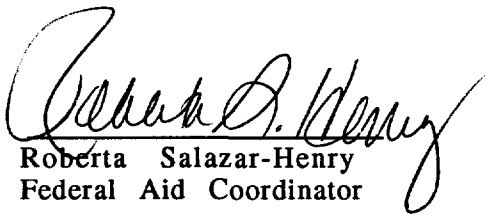
Approved by: 

Roberta Salazar-Henry
Federal Aid Coordinator

Table 1:

Morphometric data for *Thamnophis rufipunctatus*. These data were collected during 3 trips to the San Francisco River during this project segment 1 July 96 - 31 June 97.

***Thamnophis rufipunctatus* Morphometrics**
1July96-30June97
San Francisco River, NM

Female SVL (mm)	
Mean	440
Standard Error	17
Median	400
Standard Deviation	163
Range	595
Minimum	235
Maximum	830
Count	97

Male SVL (mm)	
Mean	414
Standard Error	10
Median	425
Standard Deviation	116
Range	433
Minimum	219
Maximum	652
Count	144

Male and Female SVL (mm)	
Mean	424
Standard Error	9
Median	404
Standard Deviation	137
Range	611
Minimum	219
Maximum	830
Count	241

Female TL (mm)	
Mean	125
Standard Error	4
Median	110
Standard Deviation	43
Range	151
Minimum	**59**
Maximum	**210**
Count	97

Male TL (mm)	
Mean	128
Standard Error	3
Median	127
Standard Deviation	39
Range	160
Minimum	**50**
Maximum	**210**
Count	144

Male and Female TL (mm)	
Mean	127
Standard Error	3
Median	122
Standard Deviation	41
Range	160
Minimum	**50**
Maximum	**210**
Count	241

***Thamnophis ruflpunctatus* Morphometrics**
1July96-30June97
San Francisco River, NM

Female Total Length (mm)	
Mean	**565**
Standard Error	21
Median	512
Standard Deviation	206
Range	734
Minimum	**306**
Maximum	**1040**
Count	97

Male Total Length (mm)	
Mean	**541**
Standard Error	13
Median	550
Standard Deviation	154
Range	575
Minimum	**285**
Maximum	**860**
Count	144

Male and Female Total Length (mm)	
Mean	**551**
Standard Error	11
Median	523
Standard Deviation	177
Range	755
Minimum	**285**
Maximum	**1040**
Count	241

Female Mass (grams)	
Mean	**60.2**
Standard Error	6.8
Median	26.0
Standard Deviation	67.0
Range	301.5
Minimum	**6.5**
Maximum	**308.0**
Count	97

Male Mass (grams)	
Mean	**38.6**
Standard Error	2.4
Median	32.0
Standard Deviation	28.3
Range	121.0
Minimum	**4.0**
Maximum	**125.0**
Count	144

Male and Female Mass (grams)	
Mean	**47.3**
Standard Error	3.1
Median	30.0
Standard Deviation	48.9
Range	304.0
Minimum	**4.0**
Maximum	**308.0**
Count	241

***Thamnophis ruflpunctatus* Cloacal Temperatures**
1July96-30June97
San Francisco River, NM

Female Tc (degrees C)	
Mean	**25.3**
Standard Error	.7
Median	24.8
Standard Deviation	3.5
Range	11.2
Minimum	**19.2**
Maximum	**30.4**
Count	26

Male Tc (degrees C)	
Mean	**25.4**
Standard Error	.4
Median	25.6
Standard Deviation	2.8
Range	12.1
Minimum	**17.9**
Maximum	**30.0**
Count	45

Male and Female Tc (degrees C)	
Mean	**25.4**
Standard Error	.4
Median	25.5
Standard Deviation	3.0
Range	12.5
Minimum	**17.9**
Maximum	**30.4**
Count	71

3 Trips: 13-16August1996: Total Captures=111 (includes8 re-captures of snakes marked that week.)
39 Females (25 in traps, 14 by hand)
64 Males (45 in traps, 19 by hand)

22-26September1996: Total Captures=79 (Includes 1 re-captured snake marked that week.)
37 females (23 in traps, 14 by hand)
41 Males (24 in traps, 17 by hand)

18-22May1997: Total Captures=83 (Includes 22 re-captured snakes marked that week.)
21 Females (16 in traps, 5 by hand)
39 Males (26 in traps, 13 by hand)
1 No-sex (escaped before it could be processed; in trap)

**48 snakes of the total catch (241) were re-captures from previous trips/years.
**No food habit data

Table 2:

Morphometric data for *Cnemidophorus burti*. These data were collected during 44 trips to Guadalupe Canyon during this project segment 1 July 96 - 31 June 97.

Cnemidophorus burti Morphometrics collected from 1July96 to 30June97 Guadalupe Canyon, NM

Female SVL (mm)	
Mean	**88**
Standard Error	15
Median	68
Standard Deviation	74
Range	387
Minimum	**33**
Maximum	**420**
Count	24
Confidence Level(95.0%)	31

Male SVL (mm)	
Mean	**87**
Standard Error	4
Median	86
Standard Deviation	19
Range	58
Minimum	**60**
Maximum	**118**
Count	21
Confidence Level(95.0%)	8

All *C. burti* SVL (mm)	
Mean	**74**
Standard Error	6
Median	66
Standard Deviation	49
Range	417
Minimum	**3**
Maximum	**420**
Count	69
Confidence Level(95.0%)	12

Female Mass (grams)	
Mean	**16.0**
Standard Error	3.4
Median	7.4
Standard Deviation	16.3
Minimum	**0.7**
Maximum	**52.2**
Count	23
Confidence Level(95.0%)	7

Male Mass (grams)	
Mean	**21.7**
Standard Error	3.2
Median	17.7
Standard Deviation	14.6
Minimum	**6.7**
Maximum	**46.5**
Count	21
Confidence Level(95.0%)	7

All C. *burti* Mass (grams)	
Mean	**13.6**
Standard Error	1.8
Median	7.1
Standard Deviation	14.7
Minimum	**0.7**
Maximum	**52.2**
Count	68
Confidence Level(95.0%)	4

Capture Summary
70 total captures.
Includes: 16 re-captures; 25 individuals of un-determined sex

Table 3:

Morphometric data for *Eumeces tetragrammus*. These data were collected during 44 trips to Guadalupe Canyon during this project segment 1 July 96 - 31 June 97.

Eumeces tetragrammus Morphometrics
collected 1July96 - 30June97
Guadalupe Canyon, NM

Female SVL (mm)	
Mean	**49**
Standard Error	4
Median	50
Standard Deviation	11
Range	29
Minimum	**34**
Maximum	**63**
Count	6
Confidence Level(95.0%)	11.1

Male SVL (mm)	
Mean	**59**
Standard Error	1
Median	60
Standard Deviation	4
Range	8
Minimum	**55**
Maximum	**63**
Count	6
Confidence Level(95.0%)	3.7

Male and Female SVL (mm)	
Mean	**54**
Standard Error	3
Median	56
Standard Deviation	9
Range	29
Minimum	**34**
Maximum	**63**
Count	12
Confidence Level(95.0%)	5.9

Female Mass (grams)	
Mean	**2.3**
Standard Error	0.5
Median	2.2
Standard Deviation	1.3
Range	3.9
Minimum	**0.8**
Maximum	**4.7**
Count	6
Confidence Level(95.0%)	1.4

Male Mass (grams)	
Mean	**3.3**
Standard Error	0.3
Median	3.4
Standard Deviation	0.6
Range	1.9
Minimum	**2.4**
Maximum	**4.3**
Count	6
Confidence Level(95.0%)	0.7

Male and Female Mass (grams)	
Mean	**2.8**
Standard Error	0.3
Median	2.8
Standard Deviation	1.1
Range	3.9
Minimum	**0.8**
Maximum	**4.7**
Count	12
Confidence Level(95.0%)	0.7

***Eumeces tetragrammus* Capture Data**
collected 1July96 - 30June97
Guadalupe Canyon, NM

Year	Month	Day	Re-cap	Mark	sex	SVL	Mass
1996	7	30	no	73	f	55	2.6
1996	8	15	no	101	f	34	0.8
1996	9	21	no	74	f	39	1.4
1997	5	16	no	106	f	63	4.7
1997	6	21	no	107	f	50	2
1997	6	28	no	108	f	50	2.3
1996	8	7	no	100	m	62	3.4
1997	5	3	no	102	m	57	2.9
1997	5	3	no	103	m	63	4.3
1997	5	3	no	104	m	55	2.4
1997	5	7	no	105	m	62	3.4
1997	5	21	no	106	m	56	3.4

Capture Summary
12 Total Captures (6 males, 6 Females)
0 Re-captures

Table 4:

Morphometric data for *Sceloporus sclaris*. These data were collected during 42 trips to the Animas Valley on the Gray Ranch during this project segment 1 July 96 - 31 June 97.

Sceloporus scalaris Morphometrics

(Includes Re-capture Data)

1July96-30June97

Animas Valley, NM

Female Mass (grams)	
Mean	**1.97**
Standard Error	0.22
Median	1.60
Standard Deviation	0.67
Range	1.90
Minimum	**1.50**
Maximum	**3.40**
Count	9.00
Confidence Level(95.0%)	0.51

Male Mass (grams)	
Mean	**2.13**
Standard Error	0.17
Median	1.90
Standard Deviation	0.56
Range	1.60
Minimum	**1.60**
Maximum	**3.20**
Count	11.00
Confidence Level(95.0%)	0.38

Male and Female Mass (grams)	
Mean	**2.06**
Standard Error	0.13
Median	1.85
Standard Deviation	0.60
Range	1.90
Minimum	**1.50**
Maximum	**3.40**
Count	20.00
Confidence Level(95.0%)	0.28

Female SVL (mm)	
Mean	**41.00**
Standard Error	2.37
Median	38.00
Standard Deviation	7.12
Range	21.00
Minimum	**33.00**
Maximum	**54.00**
Count	9.00
Confidence Level(95.0%)	5.48

Male SVL (mm)	
Mean	**43.55**
Standard Error	1.15
Median	44.00
Standard Deviation	3.80
Range	13.00
Minimum	**37.00**
Maximum	**50.00**
Count	11.00
Confidence Level(95.0%)	2.56

Male and Female SVL (mm)	
Mean	**42.40**
Standard Error	1.24
Median	43.00
Standard Deviation	5.54
Range	21.00
Minimum	**33.00**
Maximum	**54.00**
Count	20.00
Confidence Level(95.0%)	2.59

Sceloporus scalaris
Collected 1July96 - 30June97
Animas Valley, NM

Year	Mo	Day	Toeclip#	Recap? Y or N	Sex	SVL (mm)	Mass (grams)
1996	11	23	139	n	f	33	1.6
1996	11	23	141	n	f	36	1.7
1996	11	23	143	n	f	37	1.5
1996	11	23	138	n	m	40	2
1996	11	23	140	n	m	37	1.7
1996	11	23	142	n	m	39	1.8
1997	1	5	144	n	f	38	1.5
1997	1	5		y #143	f	40	1.6
1997	2	1	144	n	m	44	1.9
1997	2	1	145	n	m	43	1.7
1997	2	15	146	n	f	36	1.5
1997	2	15		y #141	f	45	2.3
1997	2	23		y #145	m	43	1.9
1997	3	7	147	n	f	50	2.6
1997	3	7	148	n	m	44	1.9
1997	3	7		y #140	m	47	2.9
1997	3	15		y #145	m	45	1.6
1997	3	24	149	n	m	50	3.2
1997	4	5		y #135	f	54	3.4
1997	4	13	157	n	m	47	2.8

Growth Data

#141: 36-45 SVL in ~9 wks.
1.7-2.3 g in ~9 wks.
#140: 37-47 SVL in ~11 wks.
1.7-2.9 g in ~11 wks.
#143: 37-40 SVL in ~6 wks.
1.5-1.6 g in ~6 wks.
#145: 43-45 SVL in ~6 wks.
1.7-1.6 g in ~6 wks.

Capture Summary

20 total captures (includes 6 re-captures).
15 total individual lizards were collected.
1 re-cap (#135) was a lizard marked prior to 1July96
1 lizard (#145) was captured 3 times.
3 lizards were captured twice each.

FEDERAL AID PROJECT E-31-3

STATUS OF STATE AND/OR FEDERAL LISTED AMPHIBIANS AND REPTILES IN SOUTHERN NEW MEXICO

This project will include the following species in southwestern (Catron, Grant, Hidalgo, Luna, and Sierra counties) and southeastern (Chaves County) New Mexico that are state-listed by the New Mexico Game Commission and/or by the U.S. Fish & Wildlife Service as Species of Concern or Candidate Species.

AMPHIBIANS

Bufo alvarius	Colorado River toad	SE
Bufo m. microscaphus	Arizona toad	SE, SOP
Rana chiricahuensis	Chiricahua leopard frog	CAN
Rana yavapaiensis	Lowland leopard frog	SE, SOP

REPTILES

Eumeces tetragrammus	Mountain skink	ST
Cnemidophorus burti	Canyon spotted whiptail	ST, SOP
Senticolis triaspis	Green ratsnake	ST
Thamnophis eques	Mexican garter snake	SE, SOP
Thamnophis proximus	Arid land ribbon snake	ST
Thamnophis rufipunctatus	Narrowhead garter snake	ST, SOP

SE = Considered Endangered by the State Game Commission
ST = Considered Threatened by the State Game Commission
CAN = Candidate Species for Federal Listing, USFWS Ranking
SOP = Species of Concern, USFWS Ranking