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**FORT BOWIE NATIONAL HISTORIC SITE BAT NETTING
SURVEY FOR JUNE 2001**

Karen Krebs

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A study on bat diversity was carried out during June 17, 18, and 19, 2001 at Fort Bowie National Historic Site (FBNHS) in Arizona for the National Park Service. Bats were surveyed at selected sites within FBNHS. A total of three evenings were spent netting bats for the survey. The results of the survey will be discussed in this report.

METHODS

All bat nettings were done within FBNHS (Map # 1). Two of the netting sites were chosen because of the availability of water and the third because of the possibility that it might be a bat flight corridor. A total of three sites were netted during the survey: 1) "Apache Springs" between Visitor Center and the Cemetery; 2) "Drainage" between "Apache Springs" and the Cemetery; 3) "Cattle Trough" between "Apache Springs" and the Cemetery. The "Apache Springs" and "Cattle Trough" sites had water and the "Drainage" site was dry.

We used two different size nets (20 ft. and 60 ft.) for the above three locations. We started setting up nets at 1900 hours. The nets were opened as early as 1915 and closed from 2300 hours or later depending on the bat activity. Each location had at least one person and up to two people watching the nets. The netting sessions were carried out over three consecutive evenings. Every bat caught in a net was processed immediately and turned loose. All bats were weighed, species determined, sexual condition examined, and any unusual observations noted. All the data was recorded on forms and later totaled.

RESULTS

The results of each netting session is described in the following tables/data forms and includes time of capture, species, sex, weight, notes, locations, weather, date, and GPS coordinates. Please see tables/data (Data Pg.1 & 2) for specifics. Also see the map (Map #1) for locations of netting sites.

DISCUSSION

There has not been any bat netting or monitoring of bats at FBNHS since the 1970's when Roth and Cockrum did a survey of mammals in this area. In this report, Roth and Cockrum, listed the species of bats they actually observed and what they predicted should be in the area. Four of the six species of bats we captured during our netting sessions were reported by Roth and Cockrum in their report. However, we did capture two species of *Myotis* that was not mentioned in the Roth and Cockrum report. With the exception of the "Apache Springs" site, Roth and Cockrum netted different areas at FBNHS than we did. Our three netting locations were only successful at the "Apache Springs" site. The dry "Drainage" and the "Cattle Trough" did not produce any bats in our nets. The result of the netting at the "Cattle Trough" was surprising because this type of water source is usually very successful when netted for bats. Barbara Hermann-Reese told me that the Trail Master Camera had taken a picture of a bat at the "Cattle Trough". The picture indicates that bats have utilized the cattle trough in the past. It could be that the light from the Trail Master Camera is spooking the bats. Bats are light sensitive and the flash may discourage them from returning once they have gotten an "eye" full of light. The dry "Drainage" netting site was a good idea because bats will use washes and trails as "highways" during their evening flights from place to another. Unfortunately we did not catch any bats at this site.

We netted "Apache Springs" two evenings and caught a total of twelve bats in this location. We netted the "Apache Springs" location on the first and third evening, the "Cattle Trough" site the second night, and the "Drainage" on the first evening. Bats are much more cautious the second evening if you net in the same location (personal observation). The "Apache Springs" site produced six species of *Myotis*. *Myotis ciliolabrum* and *Myotis occultus* had not been reported in the Roth and Cockrum Report. The *Myotis occultus* capture was exciting because this species is not captured often in southeastern Arizona. I carefully measured this species numerous times to avoid any error and feel confident that my measurements were correct. *Myotis californicus* was the most numerous species we caught. Roth and Cockrum mentioned that *Myotis velifer* was the most common bat in the area and we did capture two of this species. On the first

night of netting at "Apache Springs" the weather conditions were clear, calm, and warm and we captured four bats. Our second attempt of netting at "Apache Springs" two nights later produced eight bats and the weather was cloudy, humid, windy, stormy, lightning, and rainy. These conditions did not seem to affect the bats and we continued to get bats in the net even during the worst weather conditions. It could have been that the trees and vegetation surrounding "Apache Springs" area provided some protection for the bats during the adverse weather conditions. Even with this protection the nets were still affected by the wind and rain. As the stormy conditions increased at 2400 hours we took down the nets but I don't doubt that the bats continued to come to the springs during the storm and after we took the nets down.

If time allows in June 2002 it would be productive to net again at "Apache Springs". The two evenings netted at this location were successful and it would be good to continue adding to our data base. One area we did not get to net was the Quillen Well site that Roth and Cockrum mentioned in their report. We would have to get permission to net this site since it is off the FBNHS area. It would be interesting to see what this site produced if there is still a source of water at this location. Roth and Cockrum captured *Pipistrellus hesperus* and *Antrozous pallidus* at the Quillen Well site that we did not capture at "Apache Springs".

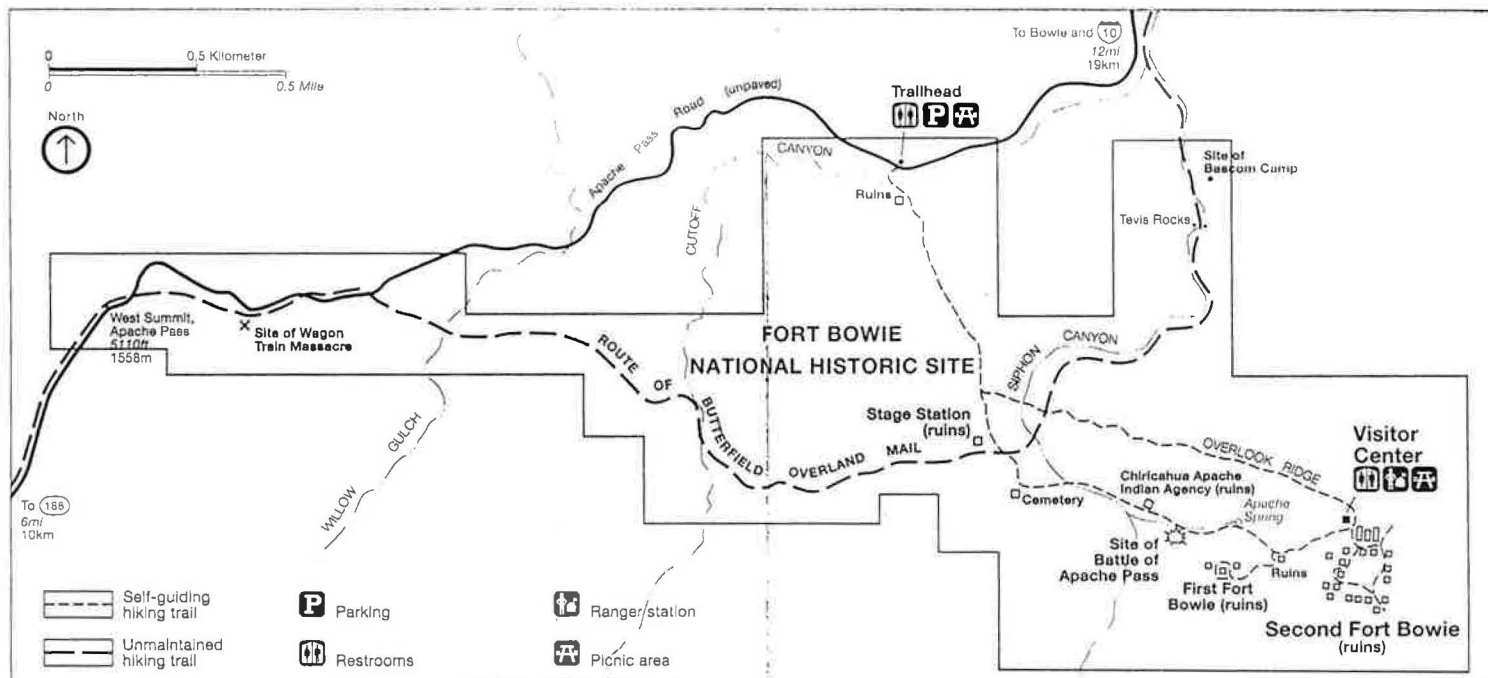
I want to thank Alan Whalon for suggesting that we net bats at FBNHS and also for his support. I want to thank Barbara Hermann-Reese for her suggestions, help, and allowing us to utilize her house for three days. I also want to thank Yar Petryszyn and Melanie Bucci for their help with the netting.



Fort Bowie at the height of its development

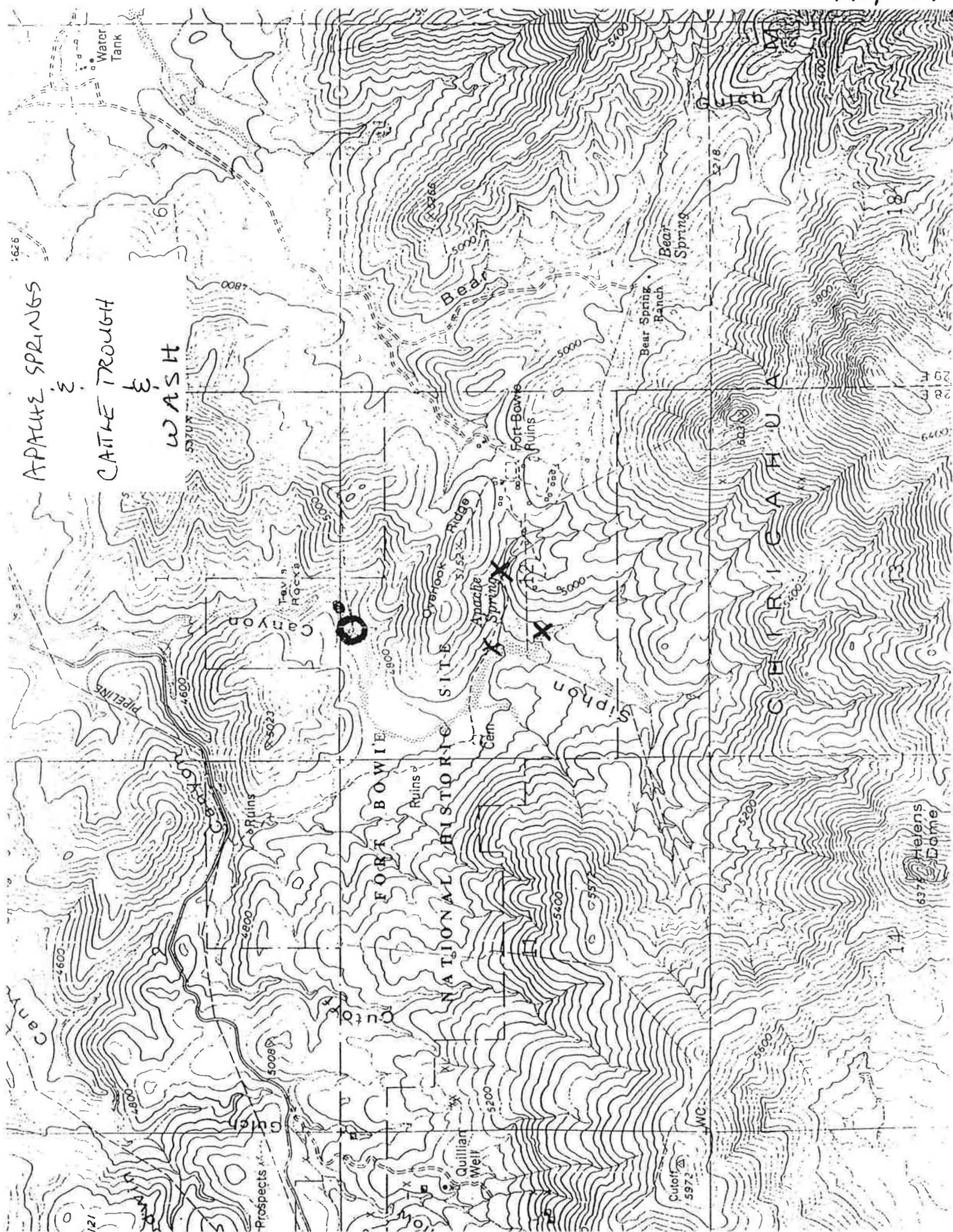
eral biotic communities. Desert grasslands dominate the lower slopes. The chaparral is characterized by tough evergreens, which sometimes form dense thickets of manzanita, mountain mahogany, and silk tassel. Oak, juniper, and pinyon pine are found on the higher slopes while large trees such as willow, walnut, and cottonwood are typical along the sandy drainages.

After good winter rains, many spring and summer wildflowers brighten the hillsides. Typical are bladder pod, desert bailey, alonia, and globe mallow. The area is also enriched by an array of animals, such as deer, gray fox, coyote, cougar, bobcat, coati, peccary, snakes, and lizards, as well as birds of many kinds.



Access The trailhead on Apache Pass Road can be reached from two directions: From Willcox, located on I-10, drive 22 miles south on Ariz. 186 to the graded dirt road leading east into Apache Pass; from the town of Bowie, also on I-10, drive south 12 miles on the partly paved road that leads directly into Apache Pass. This road is very slippery when wet. Do not cross flooded washes. For those with disabilities, call (520) 847-2500.

Administration Fort Bowie National Historic Site is a unit of the National Park System, which consists of more than 360 parks representing important examples of our country's natural and cultural heritage. A superintendent, whose address is Dos Cabezas Route, Box 6500, Willcox, AZ 85643 9737, is in charge.



FORT BOWIE NATIONAL HISTORIC SITE BAT DATA

Karen Krebbs Pg. 1

DATE: 17 June 2001

LOCATION: Two 20 ft. nets (#1 and #2) set up across water at Apache Springs. One 60 ft. net (#3) set up across dry drainage between Apache Springs and Cemetery.

WEATHER: Clear, calm, and warm. No moon.

G.P.S.: "Apache Springs" Track-349° N Lat 32° 08 min 738 sec, W Lon 109° 26 min 444 sec; 4977 ft. elev.; "Drainage" Track & GPS same as above, elev. 4886 ft.

NOTES: Nets #1 and #2 opened at 1945 and 2015 and closed at 2400. Net #3 opened at 2000 and closed at 2140.

Net #1 Data—"Apache Springs"

TIME	SPECIES	SEX	WEIGHT	NOTES
2125	<i>Myotis thysanodes</i>	M	No wt.	Got out of holding bag
2211	<i>Myotis species</i>	M	No wt.	Got out of net
2211	<i>Myotis californicus</i>	M	5.0 g	Thumb < 4. No mask. Small foot.
2357	<i>Myotis ciliolabrum</i>	F	5.5 g	Thumb > 4. Mask. Small foot.

Net #2 Data—"Apache Springs" NO BATS CAPTURED

Net #3 Data—"Dry Drainage" NO BATS CAPTURED

TOTALS for 17 June 2001 Bat Netting—

species = 3

females = 1

males = 3

unkn sp = 1

bats = 4

DATE: 18 June 2001

LOCATION: Cattle trough between Apache Springs and the Cemetery on west side of trail.

WEATHER: Warm, a few clouds, and no moon.

G.P.S.: "Cattle Trough" Track-349° N Lat 32° 08 min 682 sec, W Lon 109° 26 min 606 sec; 4984 ft. elevation.

NOTES: Two 20 ft. nets set up parallel to the length (10 ft.) of the cattle trough on each side. At one end of the cattle trough there was a tree and the other end was open. Both nets opened at 1945 and closed at 2300.

Net #1 and #2 Data—"Cattle trough"

NO BATS CAPTURED. No bats were observed at this site during the night.

FORT BOWIE NATIONAL HISTORIC SITE BAT DATA

Pg. 2

DATE: 19 June 2001

LOCATION: Three 20 ft. nets set across water at Apache Springs.

WEATHER: Cloudy, humid, buggy, stormy, lightning, and a little rain. No moon. At 2400 the stormy conditions and the threat of rain increased.

G.P.S.: "Apache Springs" Track-349° N Lat 32° 08 min 738 sec, W Lon 109° 26 min 444 sec; 4977 ft. elevation.

NOTES: Nets opened at 1915 and closed at 2410.

Net #1 Data—"Apache Springs"

TIME	SPECIES	SEX	WEIGHT	NOTES
2107	<i>Myotis species</i>	M	No wt.	Bat escaped holding bag.

Net #2 Data—"Apache Springs"

TIME	SPECIES	SEX	WEIGHT	NOTES
2032	<i>Myotis californicus</i>	M	5.0 g	Thumb < 4. Small foot. No mask.
2032	<i>Myotis californicus</i>	M	4.5 g	Thumb < 4. Small foot. No mask.
2345	<i>Myotis occultus</i>	M	8.0 g	FA 38. No fur to elbow. Glossy fur. Ears < 18.

Net #3 Data—"Apache Springs"

TIME	SPECIES	SEX	WEIGHT	NOTES
2120	<i>Myotis velifer</i>	F	11.5 g	Pregnant. Bare patch.
2120	<i>Myotis velifer</i>	?	No wt.	Got away.
2208	<i>Myotis auriculus</i>	M	8.0 g	
2230	<i>Myotis californicus</i>	F	4.5 g	Lactating. Thumb < 4. No mask.

TOTALS for 19 June 2001 Bat Netting—

species = 4

females = 2

males = 5

unk = 1

bats = 8

Note—I was training a lab assistant of Yar Petryszyn and four bats escaped because of her bat handling inexperience.